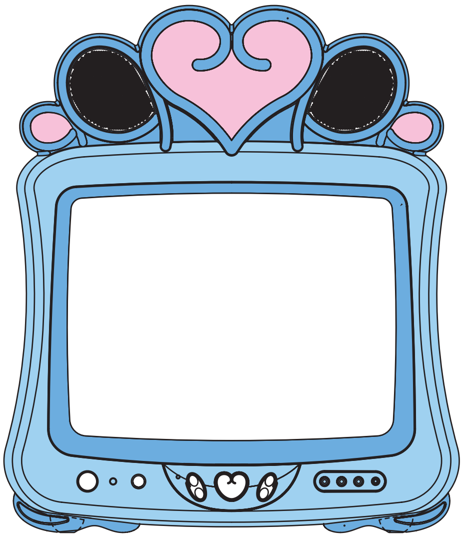
Disney

MD20080

SERVICE MANUAL

COLOR TELEVISION RECEIVER



ORIGINAL
CHASSIS CODE B

Design and specifications are subject to change without notice.

SERVICING NOTICES ON CHECKING

1. KEEP THE NOTICES

As for the places which need special attentions, they are indicated with the labels or seals on the cabinet, chassis and parts. Make sure to keep the indications and notices in the operation manual.

2. AVOID AN ELECTRIC SHOCK

There is a high voltage part inside. Avoid an electric shock while the electric current is flowing.

3. USE THE DESIGNATED PARTS

The parts in this equipment have the specific characters of incombustibility and withstand voltage for safety. Therefore, the part which is replaced should be used the part which has the same character.
Especially as to the important parts for safety which is indicated in the circuit diagram or the table of parts as a ⚠ mark, the designated parts must be used.

4. PUT PARTS AND WIRES IN THE ORIGINAL POSITION AFTER ASSEMBLING OR WIRING

There are parts which use the insulation material such as a tube or tape for safety, or which are assembled in the condition that these do not contact with the printed board. The inside wiring is designed not to get closer to the pyrogenic parts and high voltage parts. Therefore, put these parts in the original positions.

5. TAKE CARE TO DEAL WITH THE CATHODE-RAY TUBE

In the condition that an explosion-proof cathode-ray tube is set in this equipment, safety is secured against implosion. However, when removing it or serving from backward, it is dangerous to give a shock. Take enough care to deal with it.

6. AVOID AN X-RAY

Safety is secured against an X-ray by considering about the cathode-ray tube and the high voltage peripheral circuit, etc.
Therefore, when repairing the high voltage peripheral circuit, use the designated parts and make sure not modify the circuit.
Repairing except indicates causes rising of high voltage, and it emits an X-ray from the cathode-ray tube.

7. PERFORM A SAFETY CHECK AFTER SERVICING

Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are the portions which are deteriorated around the serviced places serviced or not. Check the insulation between the antenna terminal or external metal and the AC cord plug blades. And be sure the safety of that.

(INSULATION CHECK PROCEDURE)

1. Unplug the plug from the AC outlet.
2. Remove the antenna terminal on TV and turn on the TV.
3. Insulation resistance between the cord plug terminals and the eternal exposure metal **[Note 2]** should be more than 1M ohm by using the 500V insulation resistance meter **[Note 1].**
4. If the insulation resistance is less than 1M ohm, the inspection repair should be required.

[Note 1]

If you have not the 500V insulation resistance meter, use a Tester.

[Note 2]

External exposure metal: Antenna terminal
Earphone jack

HOW TO ORDER PARTS

Please include the following informations when you order parts. (Particularly the CHASSIS CODE.)

1. MODEL NUMBER and CHASSIS CODE
   You canfind it in the back of your unit.
2. PART NO. and DESCRIPTION
   You can find it in your SERVICE MANUAL.

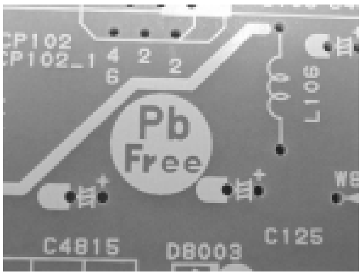
IMPORTANT

Inferior silicon grease can damage IC's and transistors.
When replacing an IC's or transistors, use only specified silicon grease (YG6260M).
Remove all old silicon before applying new silicon.

ABOUT LEAD FREE SOLDER (PbF)

Distinction of PbF PCB:

PCBs (manufactured) using lead free solder will have a PbF printing on the PCB.
(Please refer to figures.)



Caution:

- Pb free solder has a higher melting point than standard solder;
  Typically the melting point is 50°F~70°F(30°C~40°C) higher.
  Please use a soldering iron with temperature control and adjust it to 650°F ± 20°F (350°C ± 10°C).
  In case of using high temperature soldering iron, please be carefull not to heat too long.
- Pb free solder will tend to splash when heated too high (about 1100°F/ 600°C).
- All products with the printed circuit board with PbF printing must be serviced with lead free solder.
  When soldering or unsoldering, completely remove all of the solder from the pins or solder area, and be sure to heat the soldering points with the lead free solder until it melts sufficiently.

Recommendations

Recommended lead free solder composition is Sn-3.0Ag-0.5Cu.

CONTENTS

GENERAL SPECIFICATIONS

G-1	**TV System**	CRT	CRT Size / Visual Size	14 inch / 335.4mmV
			CRT Type	Normal
			Deflection	90 degree
			Magnetic Field BV/BH	+0.45G/0.18G
		Color System		PAL / SECAM / MESECAM
		Speaker		2 Speaker
			Position	Ext
			Size	3 Inch
			Impedance	8 ohm
		Sound Output	MAX	0.5+0.5 W
			10%(Typical)	-- W
		PAL60Hz		Yes
G-2	**Tuning System**	Broadcasting System		FRANCE+CCIR System B/G L
		Tuner and Receive CH	System	1Tuner
			Destination	CCIR (W/HYPER), FRENCH CATV
			Tuning System	F-Synth
			Input Impedance	VHF/UHF 75 ohm
			CH Coverage	PAL: E2 - E4, X - Z+2, S1 - S10, E5 - E12, S11 - S41, E21 - E69 SECAM: F2-F4, FB-FQ,F21-F69
		Intermediate Frequency		PAL,SECAM(U&VH),SECAM(VL)
			Picture(FP)	38.9,38.9,34.4MHz
			Sound(FS)	33.4,32.4,40.9MHz
			FP-FS	5.5,6.5,6.5MHZ
		Auto Tuning Method		All Band (Not CCIR CH Plan)
		Preset CH		80
		StereoTV Sound (Ext Audio Input Only)		Yes
		Tuner Sound Muting		Yes
G-3	**Power**	Power Source	AC	230V AC 50Hz
			DC	-
		Power Consumption	at AC	44 W at AC 230 V 50 Hz
			Stand by (at AC)	5 W at AC 230 V 50 Hz
			Per Year	-- kWh/Year
		Protector	Power Fuse	Yes
			Safety Circuit	Yes
			IC Protector(Micro Fuse)	No
G-4	**Regulation**		Safety	CE
			Radiation	CE
			X-Radiation	PTB
G-5	**Temperature**		Operation	+5°C ~ +40°C
			Storage	-20°C ~ +60°C
G-6	**Operating Humidity**			Less than 80% RH
G-7	**On Screen Display**	Menu		Yes
		Menu Type		Disney Character
		Picture		Yes
			Contrast	Yes
			Brightness	Yes
			Color	Yes
			Tint	No
			Sharpness	Yes
		Audio		No
			Bass	No
			Treble	No
			Balance	No
			BBE On/Off	No
			Stable Sound On/Off	No
		CH Tuning		Yes
			Manual	Yes
			Auto	Yes
			CH Allocation	Yes
		Language		Yes
		Clock Set		No
		On/Off Timer Set		No
		Pin Code Registration		No
		Nicam Auto Off		No
		Colour System		No
		Sound System		No
		AV2 Output Source		No
		Control Level		Yes
			Volume	Yes
			Brightness	Yes
			Contrast	Yes
			Color	Yes
			Tint (NTSC Only)	No

GENERAL SPECIFICATIONS

				Sharpness	Yes
				Tuning	Yes
				Bass	No
				Treble	No
				Balance	No
				Back Light	No
			Nicam ST		No
			Tone 1/2		No
			Pin Code		No
			AV		Yes
			Skip		Yes
			Channel		Yes
			Hotel Lock		No
			Sleep Timer		Yes
			Sound Mute		Yes
G-8	**OSD Language**				English French Spanish German Italian
G-9	**Clock and Timer**	Sleep Timer		Max Time	120 Min
				Step	10 Min
		On/Off Timer		Program(On Timer / Off Timer)	No
		Wake Up Timer			No
		Timer Back-up (at Power Off Mode)		more than	-- Min Sec
G-10	**Remote Control**	Unit			RC-JP
		Glow in Dark Remocon			No
		Format			NEC
		Custom Code			80-63 h
		Power Source		Voltage(D.C)	3V
				UM size x pcs	UM-4 x 2 pcs
		Total Keys			24 Keys
		Keys		Power(Stand By)	Yes
				1	Yes
				2	Yes
				3	Yes
				4	Yes
				5	Yes
				6	Yes
				7	Yes
				8	Yes
				9	Yes
				0	Yes
				TV/AV	Yes
				CH Up	Yes
				CH Down	Yes
				Volume Up / +	Yes
				Volume Down / -	Yes
				Quick View	Yes
				Sleep	Yes
				Info(CH Call)	Yes
				Normal	No
				Menu	Yes
				Enter	No
				Mute	Yes
				Fine Tuning +	Yes
				Fine Tuning -	Yes
				Skip	Yes
				Tone 1/2	No
		T'TEXT Keys		TEXT / MIX / TV	No
				CH Up / Page Up	No
				CH Down / Page Down	No
				Red	No
				Green	No
				Yellow / Fine Tuning -	No
				Cyan / Fine Tuning +	No
				F/T/B(Expand) / Normal	No
				Reveal / Skip	No
				Display Cancel	No
				Reset	No
				Reset / Tone 1/2	No
				Hold / Status	No
				Sub Page / Quick View	No
G-11	**Features**	Auto Degauss			Yes
		Auto Shut Off			Yes
		Canal+			Yes
		CATV			Yes
		Anti-theft			No
		Memory(Last CH)			Yes
		Memory(Last Volume)			Yes

GENERAL SPECIFICATIONS

		BBE			No
		Auto Search			Yes
		CH Allocation			Yes
		Channel Lock			No
		Just Clock Function			No
		Game Position			No
		CH Label			No
		VM Circuit			No
		Full OSD			No
		T'Text			No
				Text type	-
				Text Language	-
		Premiere			No
		Comb Filter			No
					___ Lines
		Auto CH Memory			Yes
		Auto Set Up			No
		Stable Sound			No
		FBT Leak Test Protect			No
		Hotel Lock			No
		Power On Memory			Yes
G-12	Accessories	Owner's Manual		Language	Einglish/Germany/French/Spanish Portuguese/Italian/Dutch/Finnish Swedish/Danish/Norwegian
				w/Guarantee Card	No
		Remote Control Unit			Yes
		Rod Antenna			No
				Poles	-
				Terminal	-
		Loop Antenna			No
				Terminal	-
		U/V Mixer			No
		DC Car Cord (Center+)			No
		Guarantee Card			Yes
		Warning Sheet			No
		Circuit Diagram			No
		Antenna Change Plug			No
		Service Facility List			No
		Important Safeguard			No
		Dew/AHC Caution Sheet			No
		AC Plug Adapter			No
		Short Instbook (Spa/Por/IT/Dutch/Fin/Swe/Dan/Nor)			No
		Quick Set-up Sheet			No
		Battery			Yes
				UM size x pcs	UM-4 x 2 pcs
				OEM Brand	No
		AC Cord			No
		AV Cord (2Pin-1Pin)			No
		Registration Card			No
		Safety Strap			No
		Printed Matter for Disney			No
		300 ohm to 75 ohm Antenna Adapter			No
G-13	Interface	Switch	Front	Power	No
				System Select	No
				Main Power SW	Yes
				Sub Power	No
				Channel Up	Yes
				Channel Down	Yes
				Volume Up	Yes
				Volume Down	Yes
				Menu	Yes
				TV/AV	Yes
			Rear	AC/DC	No
				TV/CATV Selector	No
				Degauss	No
				Main Power SW	No
		Indicator		Power	No
				Stand-by	Yes
				On Timer	No
		Terminals	Front	Video Input	RCA x1
				Audio Input	RCA x2
				Other Terminal	Head Phone
			Rear	Video Input(Rear1)	No
				Video Input(Rear2)	No
				Audio Input(Rear1)	No

GENERAL SPECIFICATIONS

			Audio Input(Rear2)	No
			Video Output	No
			Audio Output	No
			Euro Scart(21Pin)	Yes (x1)
			Component Input	No
			Diversity	No
			Ext Speaker	No
			DC Jack 12V(Center +)	No
			VHF/UHF Antenna Input	Din Type
			AC Outlet	No
G-14	**Set Size**		Approx. W x D x H (mm)	401.5 x 371 x 465.5
			w/o Speaker,Legs Approx. W x D x H (mm)	401.5 x 371 x 350
G-15	**Weight**		Net (Approx.)	11.0kg (24.3lbs)
			Net w/o Speaker,Legs Approx.	9.5 kg (20.9lbs)
			Gross (Approx.)	13.5kg (29.8lbs)
G-16	**Carton**	Master Carton		No
			Content	---- Sets
			Material	-- /--
			Dimensions W x D x H(mm)	-- x -- x --
			Description of Origin	No
		Gift Box		Yes
			Material	Double/Full Color
			Dimensions W x D x H(mm)	493 x 423 x 465
			Design	As per Buyer's
			Description of Origin	No
		Drop Test		Natural Dropping At 1 Corner / 3 Edges / 6 Surfaces
			Height (cm)	62
		Container Stuffing		640 Sets/40' container
G-17	**Material**	Cabinet	Cabinet Front	PS 94HB
			Cabinet Rear	PS 94HB
			Cover	Yes
		PCB	Non-Halogen Demand	No
			Eyelet Demand	No
G-18	**Environment**	Environmental s		Green procurement of ORION
		Pb-free		Phase3 (Phase3A)
		WEEE		Yes

DISASSEMBLY INSTRUCTIONS

1. REMOVAL OF ANODE CAP

Read the following **NOTED** items before starting work.

* After turning the power off there might still be a potential voltage that is very dangerous. When removing the Anode Cap, make sure to discharge the Anode Cap's potential voltage.
* Do not use pliers to loosen or tighten the Anode Cap terminal, this may cause the spring to be damaged.

REMOVAL

1. Follow the steps as follows to discharge the Anode Cap. **(Refer to Fig. 1-1.)**
   Connect one end of an Alligator Clip to the metal part of a flat-blade screwdriver and the other end to ground.
   While holding the plastic part of the insulated screwdriver, touch the support of the Anode with the tip of the screwdriver.
   A cracking noise will be heard as the voltage is discharged.

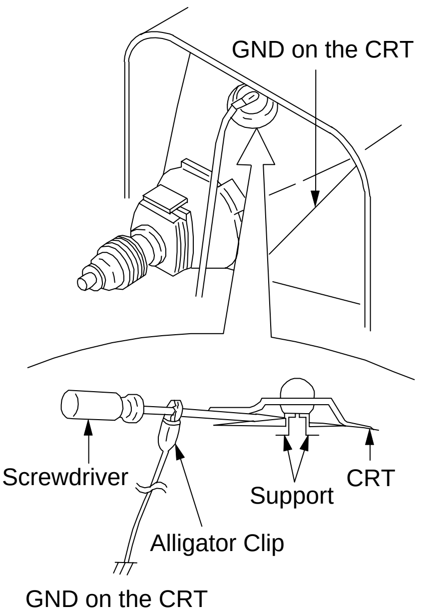


Fig. 1-1

2. Flip up the sides of the Rubber Cap in the direction of the arrow and remove one side of the support. **(Refer to Fig. 1-2.)**

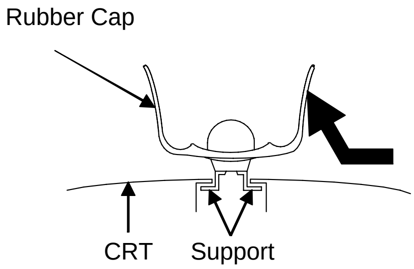


Fig. 1-2

3. After one side is removed, pull in the opposite direction to remove the other.

NOTE

Take care not to damage the Rubber Cap.

INSTALLATION

1. Clean the spot where the cap was located with a small amount of alcohol. **(Refer to Fig. 1-3.)**

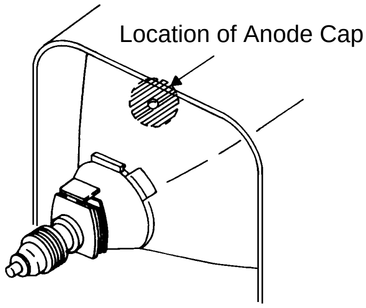
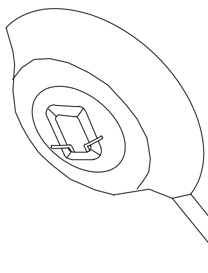


Fig. 1-3

NOTE

Confirm that there is no dirt, dust, etc. at the spot where the cap was located.

2. Arrange the wire of the Anode Cap and make sure the wire is not twisted.
3. Turn over the Rubber Cap. **(Refer to Fig. 1-4.)**


Fig. 1-4

4. Insert one end of the Anode Support into the anode button, then the other as shown in **Fig. 1-5.**

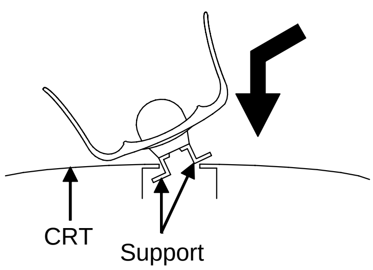


Fig. 1-5

5. Confirm that the Support is securely connected.
6. Put on the Rubber Cap without moving any parts.

DISASSEMBLY INSTRUCTIONS

2. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC

REMOVAL

1. Put Masking Tape (cotton tape) around the Flat Package IC to protect other parts from any damage.
(Refer to Fig. 2-1.)

NOTE

Masking is carried out on all the parts located within 10 mm distance from IC leads.

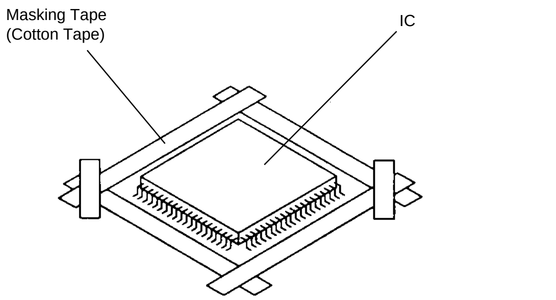


Fig. 2-1

2. Heat the IC leads using a blower type IC desoldering machine. **(Refer to Fig. 2-2.)**

NOTE

Do not rotate or move the IC back forth until IC can move back and forth easily after desoldering the leads completely.

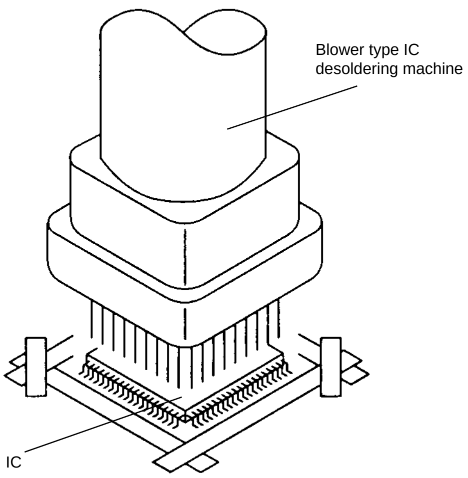


Fig. 2-2

3. When IC starts moving back and forth easily after desoldering completely, pickup the corner of the IC using a tweezers and remove the IC by moving with the IC desoldering machine. **(Refer to Fig. 2-3.)**

NOTE

Some ICs on the PCB are affixed with glue, so be careful not to break or damage the foil of each IC leads or solder lands under the IC when removing it.

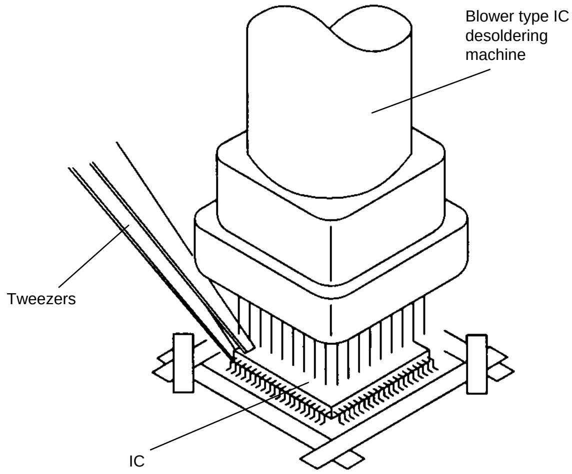


Fig. 2-3

4. Peel off the Masking Tape.

5. Absorb the solder left on the pattern using the Braided Shield Wire. **(Refer to Fig. 2-4.)**

NOTE

Do not move the Braided Shield Wire in the vertical direction towards the IC pattern.

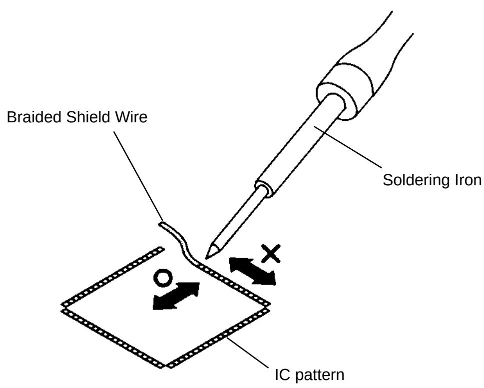


Fig. 2-4

DISASSEMBLY INSTRUCTIONS

INSTALLATION

1. Take care of the polarity of new IC and then install the new IC fitting on the printed circuit pattern. Then solder each lead on the diagonal positions of IC temporarily. **(Refer to Fig. 2-5.)**

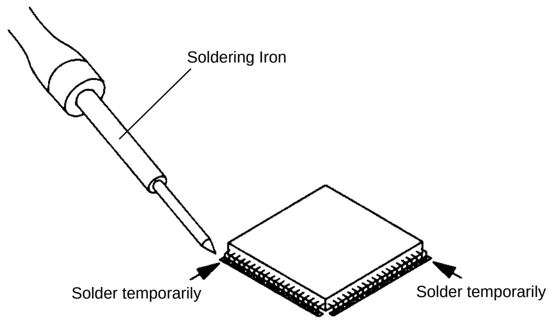


Fig. 2-5

2. Supply the solder from the upper position of IC leads sliding to the lower position of the IC leads. **(Refer to Fig. 2-6.)**

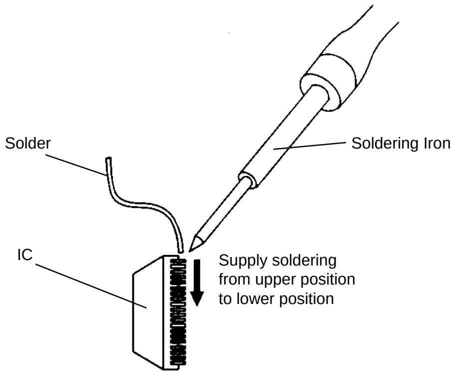


Fig. 2-6

3. Absorb the solder left on the lead using the Braided Shield Wire. **(Refer to Fig. 2-7.)**

   NOTE

   Do not absorb the solder to excess.

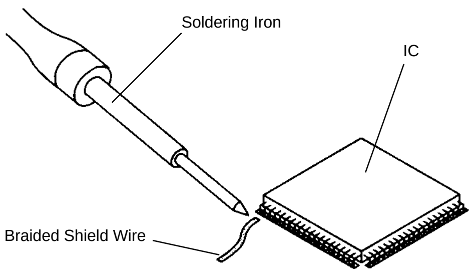


Fig. 2-7

4. When bridge-soldering between terminals and/or the soldering amount are not enough, resolder using a Thin-tip Soldering Iron. **(Refer to Fig. 2-8.)**

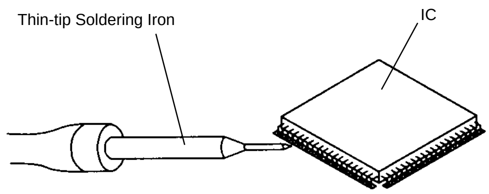


Fig. 2-8

5. Finally, confirm the soldering status on four sides of the IC using a magnifying glass.
   Confirm that no abnormality is found on the soldering position and installation position of the parts around the IC. If some abnormality is found, correct by resoldering.

   NOTE

   When the IC leads are bent during soldering and/or repairing, do not repair the bending of leads. If the bending of leads are repaired, the pattern may be damaged. So, be always sure to replace the IC in this case.

SERVICE MODE LIST

This unit is provided with the following SERVICE MODES so you can repair, examine and adjust easily.
To enter the Service Mode, press both set key and remote control key for more than 1 second.

Set Key	Remocon Key	Operations
VOL. (-) MIN	0	Releasing of V-CHIP PASSWORD and LOCK PASSWORD.
VOL. (-) MIN	1	Initialization of factory data. NOTE: Do not use this for normal servicing. If you set factory initialization, the memories are reset such as the clock setting, the channel setting, the POWER ON total hours, and PLAY/REC total hours.
VOL. (-) MIN	6	POWER ON total hours is displayed on the screen. Refer to the "CONFIRMATION OF HOURS USED". Can be checked of the INITIAL DATA of MEMORY IC. Refer to the "WHEN REPLACING EEPROM (MEMORY) IC".
VOL. (-) MIN	9	Display of the Adjustment MENU on the screen. Refer to the "ELECTRICAL ADJUSTMENT" (On-Screen Display Adjustment).

CONFIRMATION OF HOURS USED

POWER ON total hours can be checked on the screen. Total hours are displayed in 16 system of notation.

NOTE: If you set factory initialization, the total hours is reset to "0".

1. Set the VOLUME to minimum.
2. Press both VOL. DOWN button on the set and Channel button **(6)** on the remote control for more than 1 second.
3. After the confirmation of using hours, turn off the power.

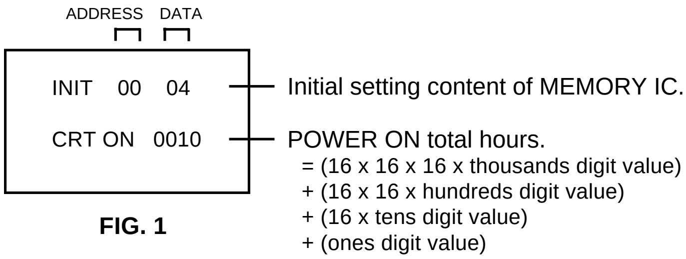


FIG. 1

WHEN REPLACING EEPROM (MEMORY) IC

If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to TABLE 1.

INI	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
00	04	74	60	90	82	02	00	00	3F	00	00	00	00	00	C2	AA
10	02	8A	C0	40	06	00	70	C4	00	00	00	80	00	4A	00	00
20	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00

Table 1

1. Enter DATA SET mode by setting VOLUME to minimum.
2. While holding down VOLUME button on front cabinet, press key 6 on remote control for more than 1 second. ADDRESS and DATA should appear as FIG 1.
3. ADDRESS is now selected and should "blink". Using the VOL. +/- button on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
4. Press ENTER to select DATA. When DATA is selected, it will "blink".
5. Again, step through the DATA using VOL. +/- button until required DATA value has been selected.
6. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
7. Repeat steps 3 to 6 until all data has been checked.
8. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input. **After the data input, set to the initializing of shipping.**
9. Turn POWER on.
10. While holding down VOLUME button on front cabinet, press key 1 on remote control for more than 1 second.
11. After the finishing of the initializing of shipping, the unit will turn off automatically.

ELECTRICAL ADJUSTMENTS

1. BEFORE MAKING ELECTRICAL ADJUSTMENTS

Read and perform these adjustments when repairing the circuits or replacing electrical parts or PCB assemblies.

CAUTION

- Use an isolation transformer when performing any service on this chassis.
- Before removing the anode cap, discharge electricity because it contains high voltage.
- When removing a PCB or related component, after unfastening or changing a wire, be sure to put the wire back in its original position.
- When you exchange IC and Transistor with a heat sink, apply silicon grease **(YG6260M)** on the contact section of the heat sink. Before applying new silicon grease, remove all the old silicon grease. (Old grease may cause damages to the IC and Transistor.)

Prepare the following measurement tools for electrical adjustments.

1. Oscilloscope
2. Digital Voltmeter
3. Pattern Generator

On-Screen Display Adjustment

1. In the condition of NO indication on the screen. Press the VOL. DOWN button on the set and the Channel button **(9)** on the remote control for more than 2 seconds to appear the adjustment mode on the screen as shown in **Fig. 1-1.**

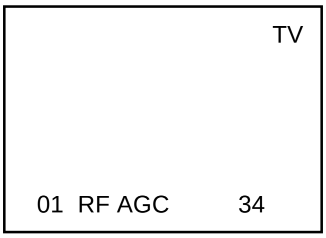


Fig. 1-1

2. Use the Channel UP/DOWN button or Channel button **(0-9)** on the remote control to select the options shown in **Fig. 1-2.**
3. Press the MENU button on the remote control to end the adjustments.

NO.	FUNCTION	NO.	FUNCTION
00	CUT OFF	21	CONT CENT
01	RF AGC	22	CONT MAX
02	AGC GAIN	23	CONT MIN
03	R DRIVE	24	COLOR CENT
04	R CUT OFF	25	COLOR MAX
05	G DRIVE	26	COLOR MIN
06	G CUT OFF	28	SHARP
07	B DRIVE	29	M R CUT OFF
08	H POSI	30	M G CUT OFF
10	V POSI	31	M B CUT OFF
12	V SIZE	32	CVBS OUT
14	VCO COASE	33	APR THR
15	VCO FINE	34	BELL
16	VCO COASE L1	35	BANDPASS
17	VCO FINE L1	36	H POSI OSD
18	BRIGHT CENT		
19	BRIGHT MAX		
20	BRIGHT MIN		

Fig. 1-2

2. BASIC ADJUSTMENTS

2-1: AGC VOLTAGE

1. Place the set in Aging Test for more than 15 minutes.
2. Receive the UHF (63 ± 1dB).
3. Connect the digital voltmeter between the **TP001** and **the GND.**
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(01)** on the remote control to select "RF AGC".
5. Press the VOL. UP/DOWN button on the remote control until the digital voltmeter is 2.4 ± 0.05V.

2-2: CUT OFF

1. Place the set in Aging Test for more than 15 minutes.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(00)** on the remote control to select "CUT OFF".
4. Adjust the **Screen Volume** until a dim raster is obtained.

2-3: WHITE BALANCE

NOTE: Adjust after performing CUT OFF adjustment.

1. Place the set in Aging Test for more than 10 minutes.
2. Receive the white 100% signal from the Pattern Generator.
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(29)** on the remote control to select "M R CUT OFF".
5. Using the VOL. UP/DOWN button on the remote control, adjust the M R CUT OFF.
6. Press the CH. UP/DOWN button on the remote control to select the "R DRIVE", "G DRIVE", or "M G CUT OFF".
7. Using the VOL. UP/DOWN button on the remote control, adjust the R DRIVE, G DRIVE, M G CUT OFF or M R CUT OFF.
8. Perform the above adjustments 6 and 7 until the white color is achieved.

2-4: FOCUS

1. Receive the monoscope pattern.
2. Turn the Focus Volume fully counterclockwise once.
3. Adjust the **Focus Volume** until picture is distinct.

2-5: CONSTANT VOLTAGE

1. Place the set in Aging Test for more than 15 minutes.
2. Using the remote control, set the brightness and contrast to normal position.
3. Connect the digital voltmeter to **W066**.
4. Set condition is AV MODE without signal.
5. Adjust the **VR501** until the digital voltmeter is 135 ± 0.5V.

ELECTRICAL ADJUSTMENTS

2-6: HORIZONTAL POSITION

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(08)** on the remote control to select "H POSI".
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on right and left becomes minimum.

2-7: VERTICAL SIZE

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(12)** on the remote control to select "V SIZE".
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on upside and downside becomes 8 ± 3%.
5. Receive a broadcast and check if the picture is normal.

2-8: BRIGHT CENT

1. Place the set with Aging Test for more than 15 minutes.
2. Receive the monoscope pattern. (RF Input)
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(18)** on the remote control to select "BRIGHT CENT".
5. Press the VOL. UP/DOWN button on the remote control until the GLAY SCALE 25% section become to be the half black.
6. Receive the monoscope pattern. (Audio Video Input)
7. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 3~5.

2-9: CONT CENT

1. Place the set with Aging Test for more than 15 minutes.
2. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(21)** on the remote control to select "CONT CENT".
3. Press the VOL. UP/DOWN button on the remote control until the cont cent step No. becomes "30".
4. Press the AV button on the remote control to set the AV mode. Then perform the above adjustments 1~3.

2-10: COLOR CENT

1. Receive the color bar pattern. (RF Input)
2. Connect the oscilloscope to **TP023.**
3. Using the remote control, set the brightness, contrast and color to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(24)** on the remote control to select "COLOR CENT".
5. Adjust the VOLTS RANGE VARIABLE knob of the oscilloscope until the range between white 100% and 0% is set to 5 scales on the screen of the oscilloscope.
6. Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to 85 ± 10% for the white level. **(Refer to Fig. 2-1)**
7. Receive the color bar pattern. (Audio Video Input)
8. Press the AV button on the remote control to set the AV mode. Then perform the above adjustments 2~6.

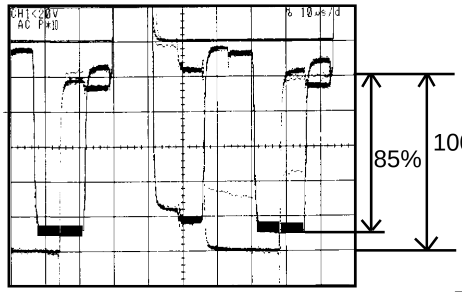


Fig. 2-1

2-11: VCO COASE/VCO FINE

1. Connect the oscillator (38.9MHz) to between the **TP002** and **the (GND) of TU001.**
2. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(14)** on the remote control to select "VCO COASE".
3. Press the VOL. UP/DOWN button on the remote control until the "+" appear on the screen.
4. Press the CH UP button once to set to "VCO FINE" mode.
5. Press the VOL. UP/DOWN button on the remote control to select the 3 step down point from the upper limit on the "+".
   (Example: In case of the "+" point 30~41, select 37.)

2-12: VCO COASE L1/VCO FINE L1

1. Connect the oscillator (33.95MHz) to between the **TP002.**
2. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(16)** on the remote control to select "VCO COASE L1".
3. Press the VOL. UP/DOWN button on the remote control until the "+" appear on the screen.
4. Press the CH UP button once to set to "VCO FINE L1" mode.
5. Press the VOL. UP/DOWN button on the remote control to select the 5 step down point from the upper limit on the "+".
   (Example: In case of the "+" point 30~41, select 37.)

ELECTRICAL ADJUSTMENTS

2-13: VERTICAL POSITION

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(10)** on the remote control to select "V POSI".
4. Check if the step No. V. POSI is "11".
5. Adjust the **VR401** until the horizontal line becomes fit to notch of the shadow mask. **(Refer to Fig. 2-2)**

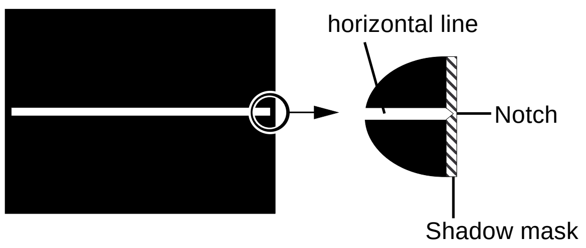


Fig. 2-2

2-14: VERTICAL LINEARITY

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Adjust the **VR420** until the SHIFT quantity of the OVER SCAN on upside and downside becomes minimum.

2-15: OSD HORIZONTAL

1. Using the remote control, set the brightness and contrast to normal position.
2. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(36)** on the remote control to select "H POS OSD".
3. Press the VOL. UP/DOWN button on the remote control until the difference of A and B becomes minimum. **(Refer to Fig. 2-3)**

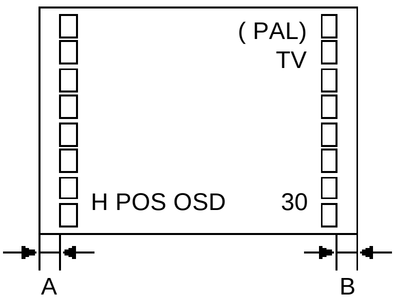


Fig. 2-3

2-16 : Confirmation of Fixed Value (Step No.)

Please check if the fixed values of the each adjustment items are set correctly referring below.

NO.	**FUNCTION**	**RF**	**AV**
02	AGC GAIN	00	---
04	R CUT OFF	00	---
06	G CUT OFF	00	---
07	B DRIVE	25	---
19	BRIGHT MAX	35	35
20	BRIGHT MIN	05	05
22	CONT MAX	55	55
23	CONT MIN	04	04
25	COLOR MAX	48	48
26	COLOR MIN	10	10
28	SHARP	12	---
31	M B CUT OFF	80	---
32	CVBS OUT	12	---
33	APR THR	04	---
34	BELL FILTER	00	---
35	BANDPASS	00	---

ELECTRICAL ADJUSTMENTS

3. PURITY AND CONVERGENCE ADJUSTMENTS

NOTE

1. Turn the unit on and let it warm up for at least 30 minutes before performing the following adjustments.
2. Place the CRT surface facing east or west to reduce the terrestrial magnetism.
3. Turn ON the unit and demagnetize with a Degauss Coil.

3-1: STATIC CONVERGENCE (ROUGH ADJUSTMENT)

1. Tighten the screw for the magnet. Refer to the adjusted CRT for the position. **(Refer to Fig. 3-1)**
   If the deflection yoke and magnet are in one body, untighten the screw for the body.
2. Receive the green raster pattern from the color bar generator.
3. Slide the deflection yoke until it touches the funnel side of the CRT.
4. Adjust center of screen to green, with red and blue on the sides, using the pair of purity magnets.
5. Switch the color bar generator from the green raster pattern to the crosshatch pattern.
6. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
7. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.
8. Adjust the crosshatch pattern to change to white by repeating steps 6 and 7.

3-2: PURITY

NOTE

Adjust after performing adjustments in section 3-1.

1. Receive the green raster pattern from color bar generator.
2. Adjust the pair of purity magnets to center the color on the screen.
   Adjust the pair of purity magnets so the color at the ends are equally wide.
3. Move the deflection yoke backward (to neck side) slowly, and stop it at the position when the whole screen is green.
4. Confirm red and blue colors.
5. Adjust the slant of the deflection yoke while watching the screen, then tighten the fixing screw.

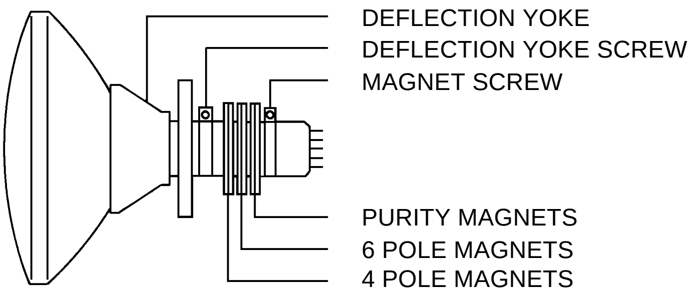


Fig. 3-1

3-3: STATIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 3-2.

1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

3-4: DYNAMIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 3-3.

1. Adjust the differences around the screen by moving the deflection yoke upward/downward and right/left. **(Refer to Fig. 3-2-a)**
2. Insert three wedges between the deflection yoke and CRT funnel to fix the deflection yoke. **(Refer to Fig. 3-2-b)**

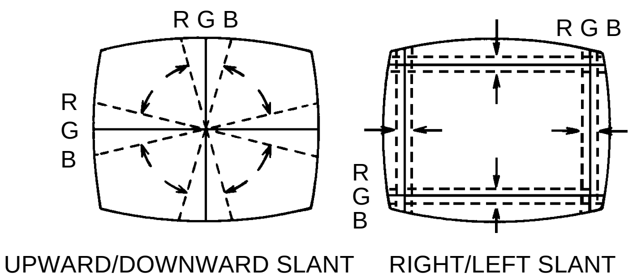
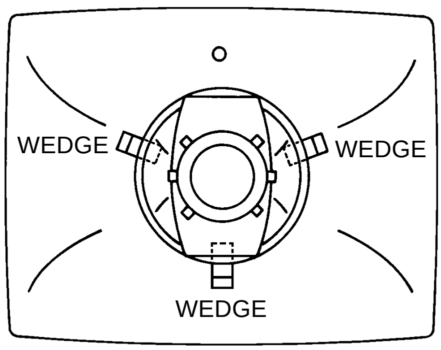


Fig. 3-2-a

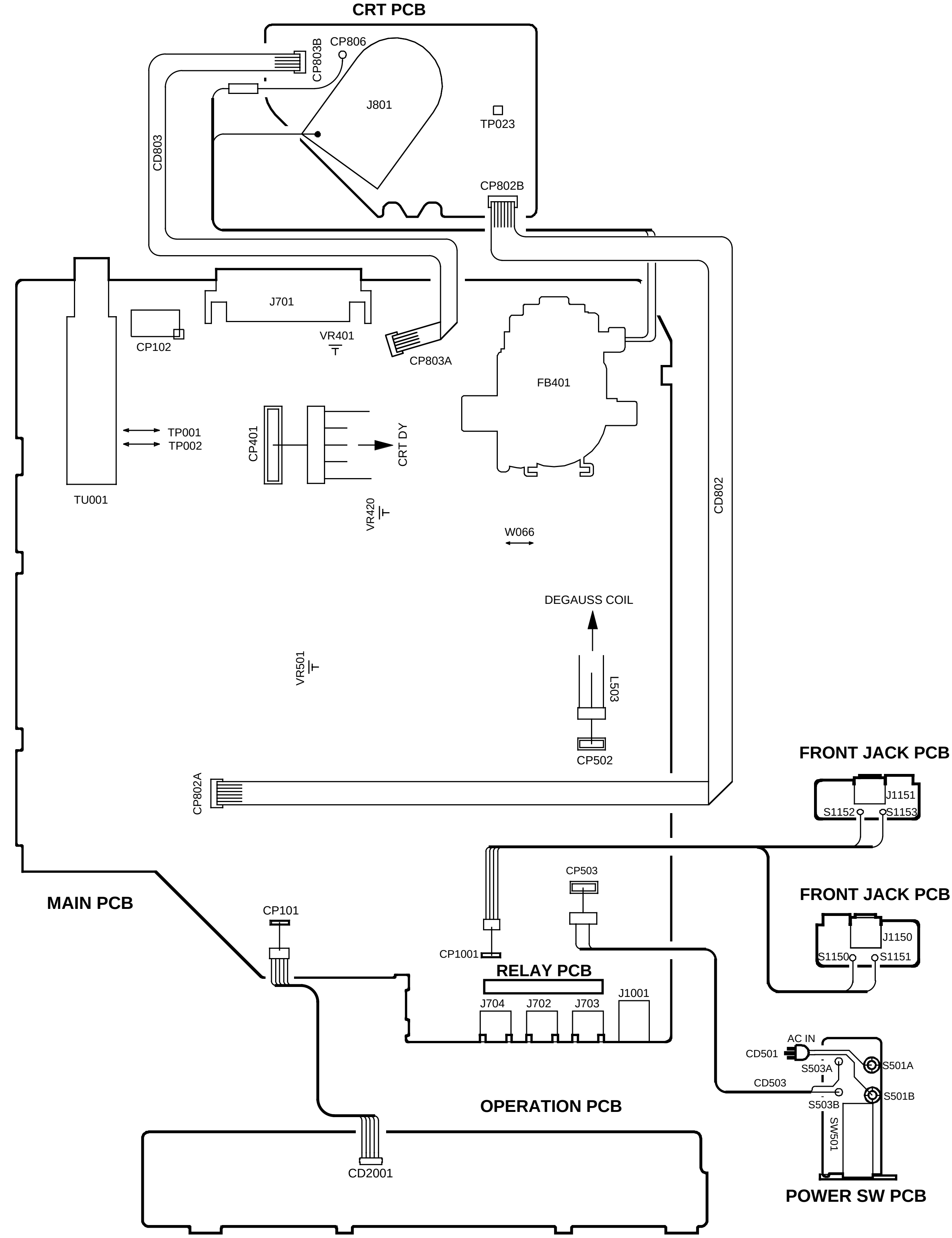


WEDGE POSITION

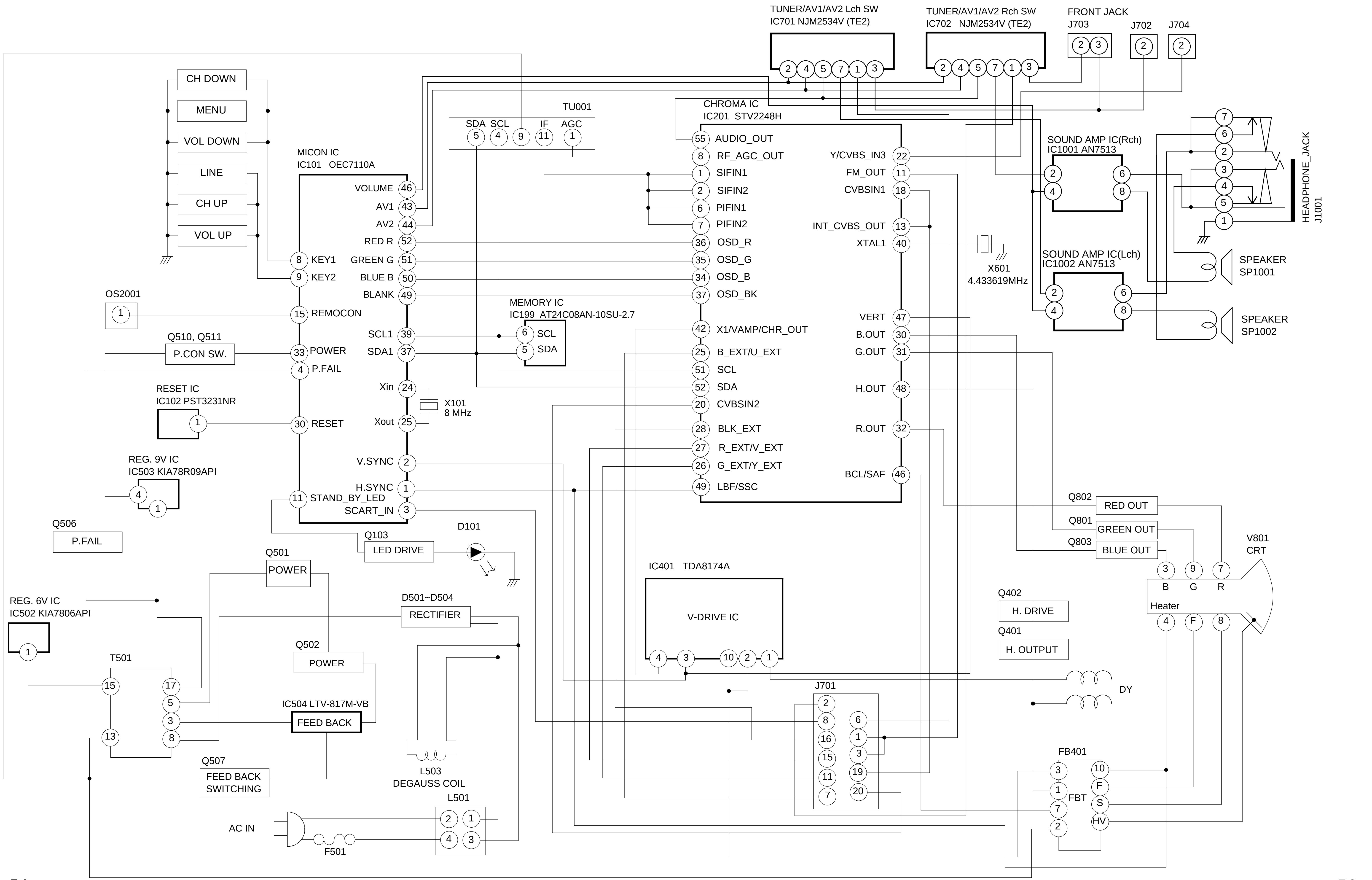
Fig. 3-2-b

ELECTRICAL ADJUSTMENTS

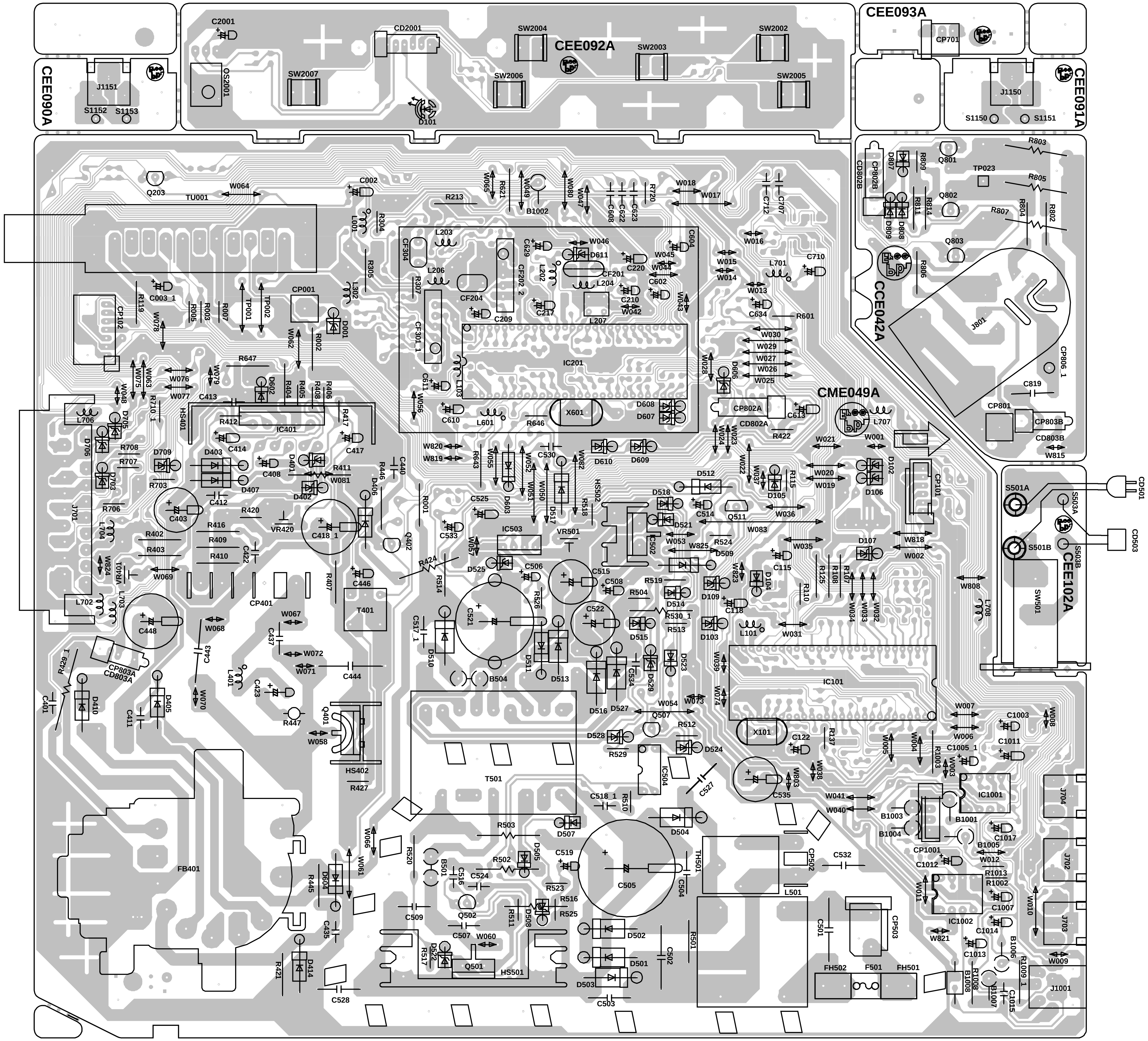
4. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION)



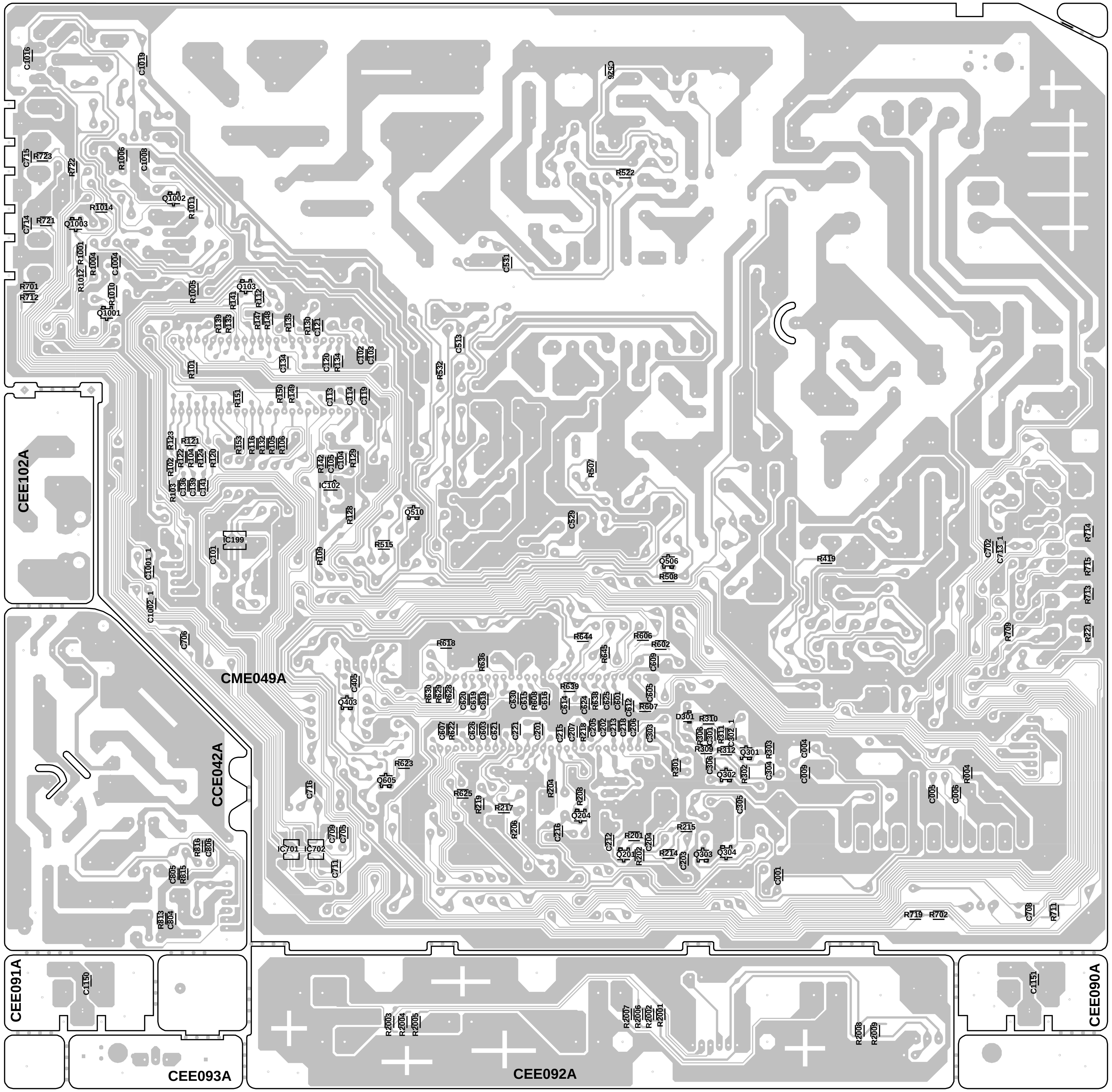
BLOCK DIAGRAM



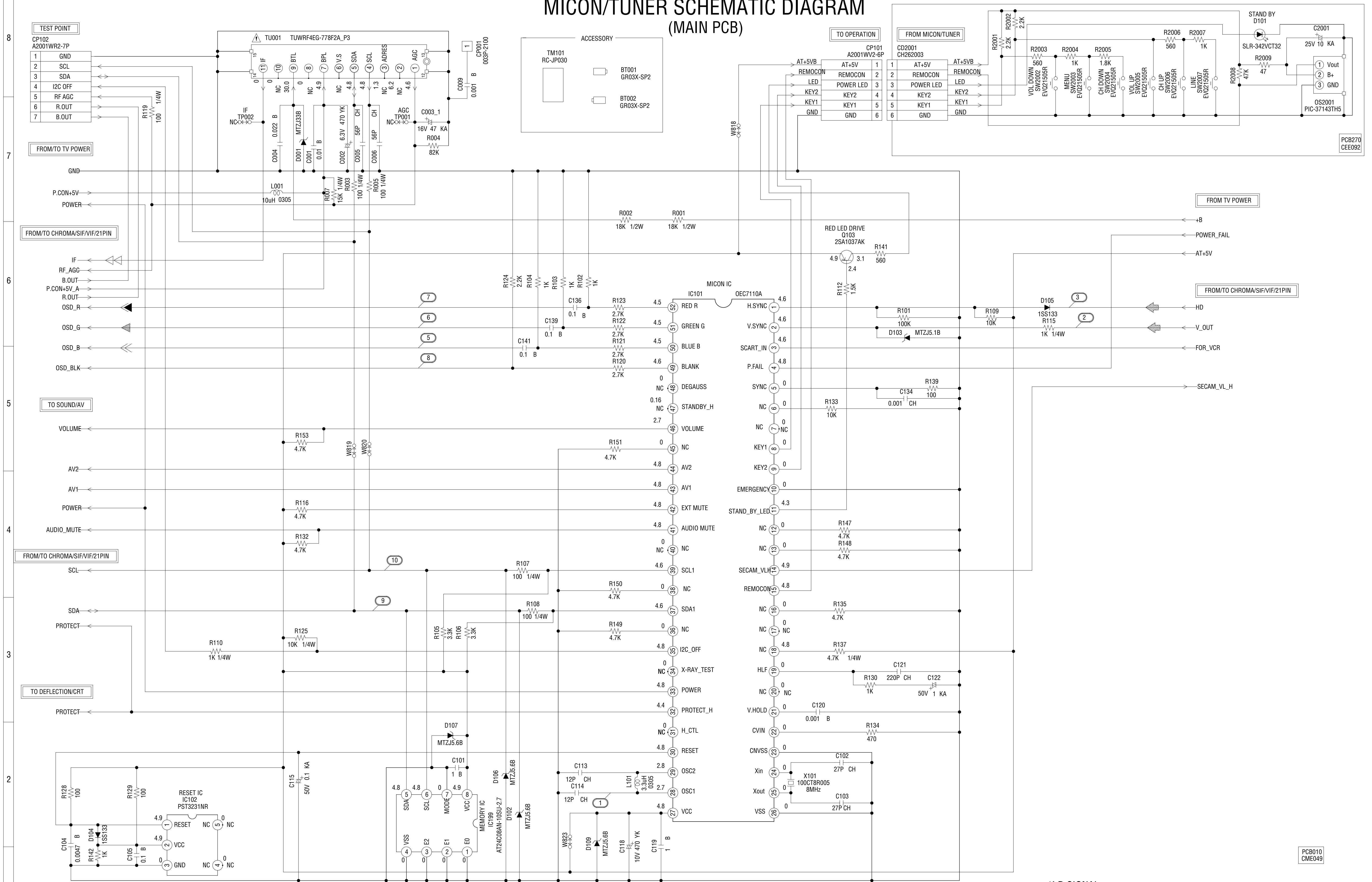
PRINTED CIRCUIT BOARDS
MAIN/CRT/OPERATION/FRONT JACK/POWER SW/RELAY (INSERTED PARTS)
SOLDER SIDE



PRINTED CIRCUIT BOARDS
MAIN/CRT/OPERATION/FRONT JACK (CHIP MOUNTED PARTS)
SOLDER SIDE



MICON/TUNER SCHEMATIC DIAGRAM
(MAIN PCB)



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

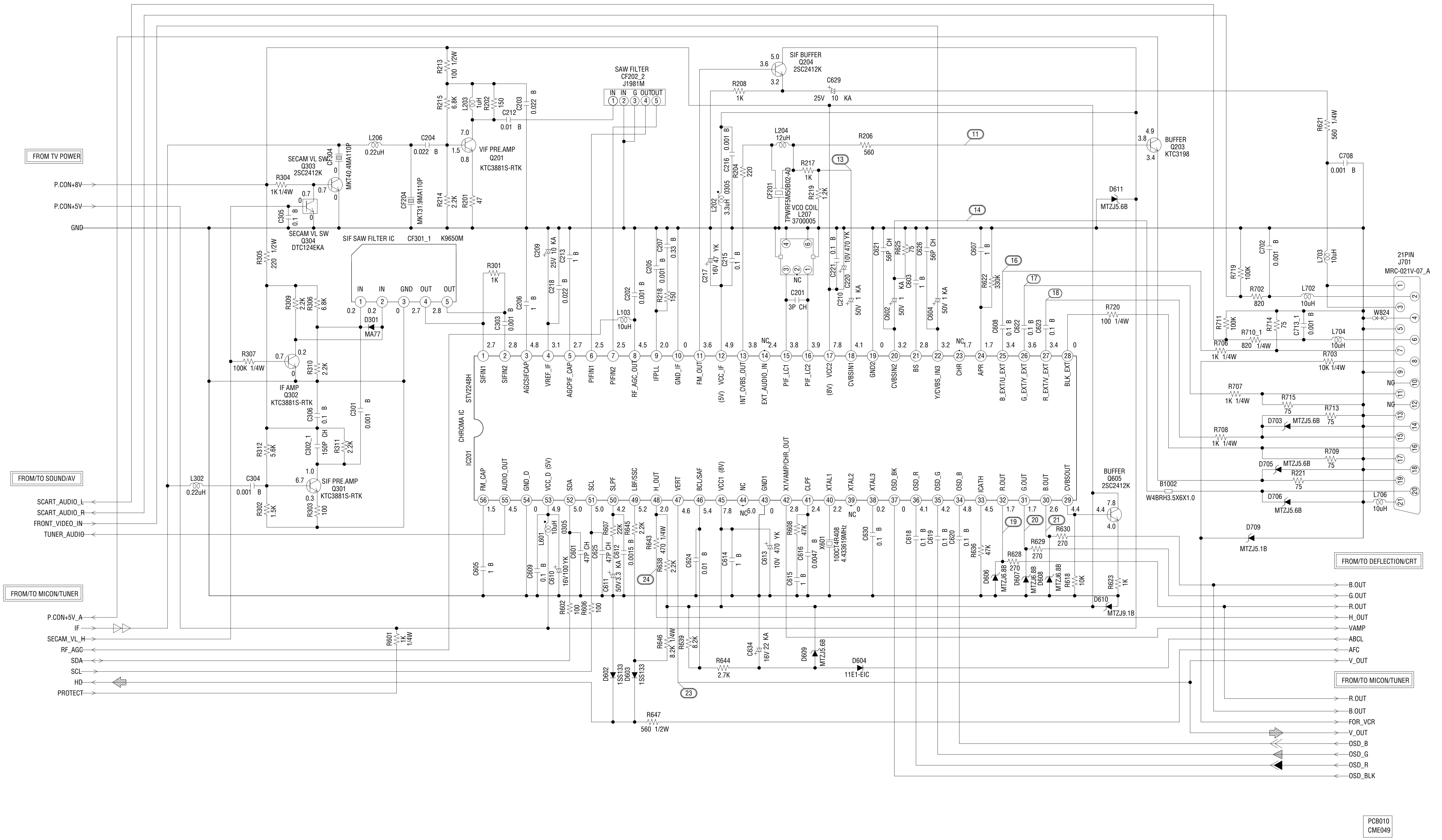
CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY. USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

- R.SIGNAL
- G.SIGNAL
- B.SIGNAL
- DEFLECTION SIGNAL
- TUNER VIDEO SIGNAL

CHROMA/SIF/VIF/21PIN SCHEMATIC DIAGRAM

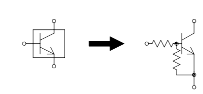
(MAIN PCB)



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

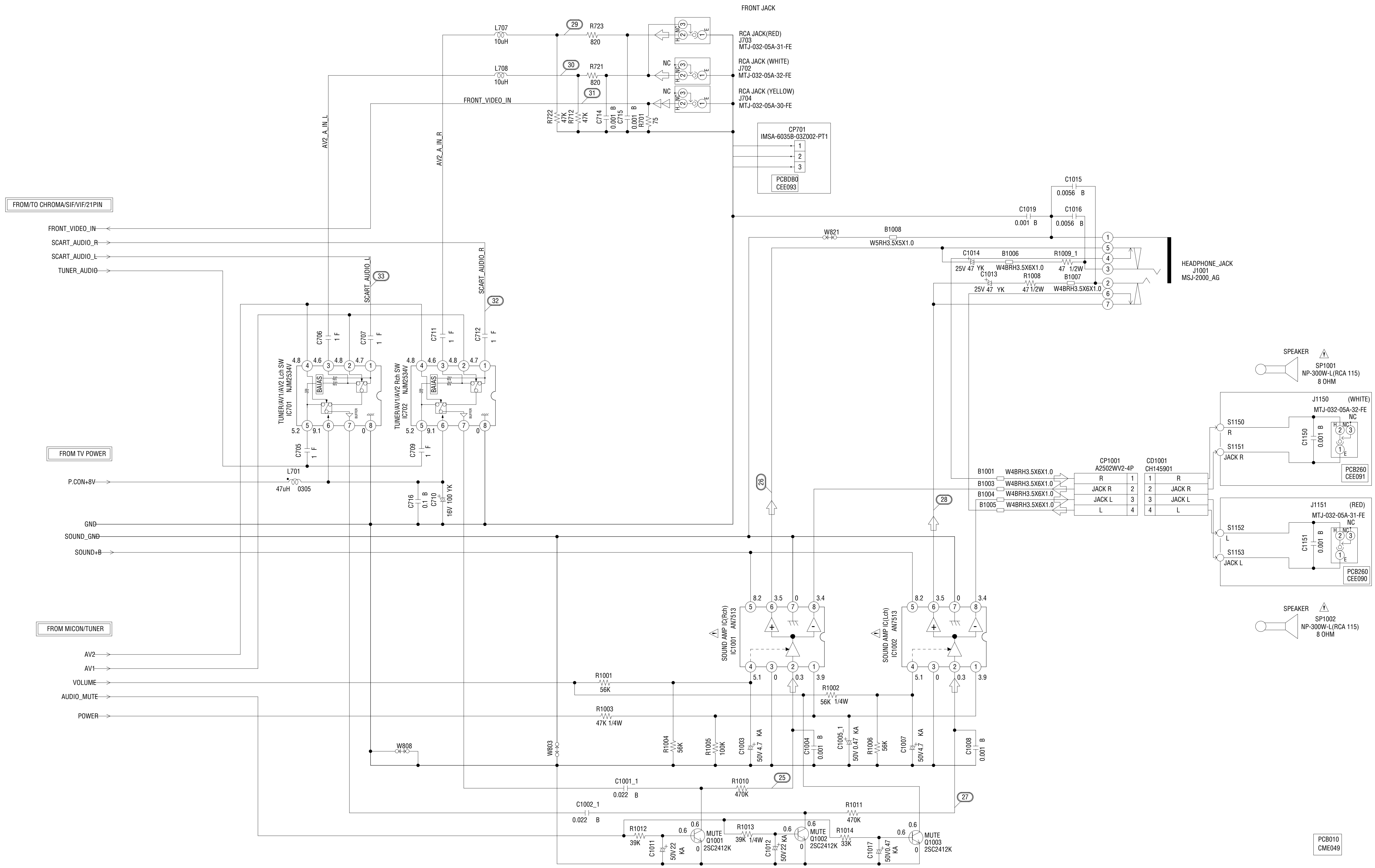
CAUTION: DIGITAL TRANSISTOR



DEFLECTION SIGNAL
R.SIGNAL
G.SIGNAL
B.SIGNAL
TUNER VIDEO SIGNAL

SOUND/AV SCHEMATIC DIAGRAM

(MAIN PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

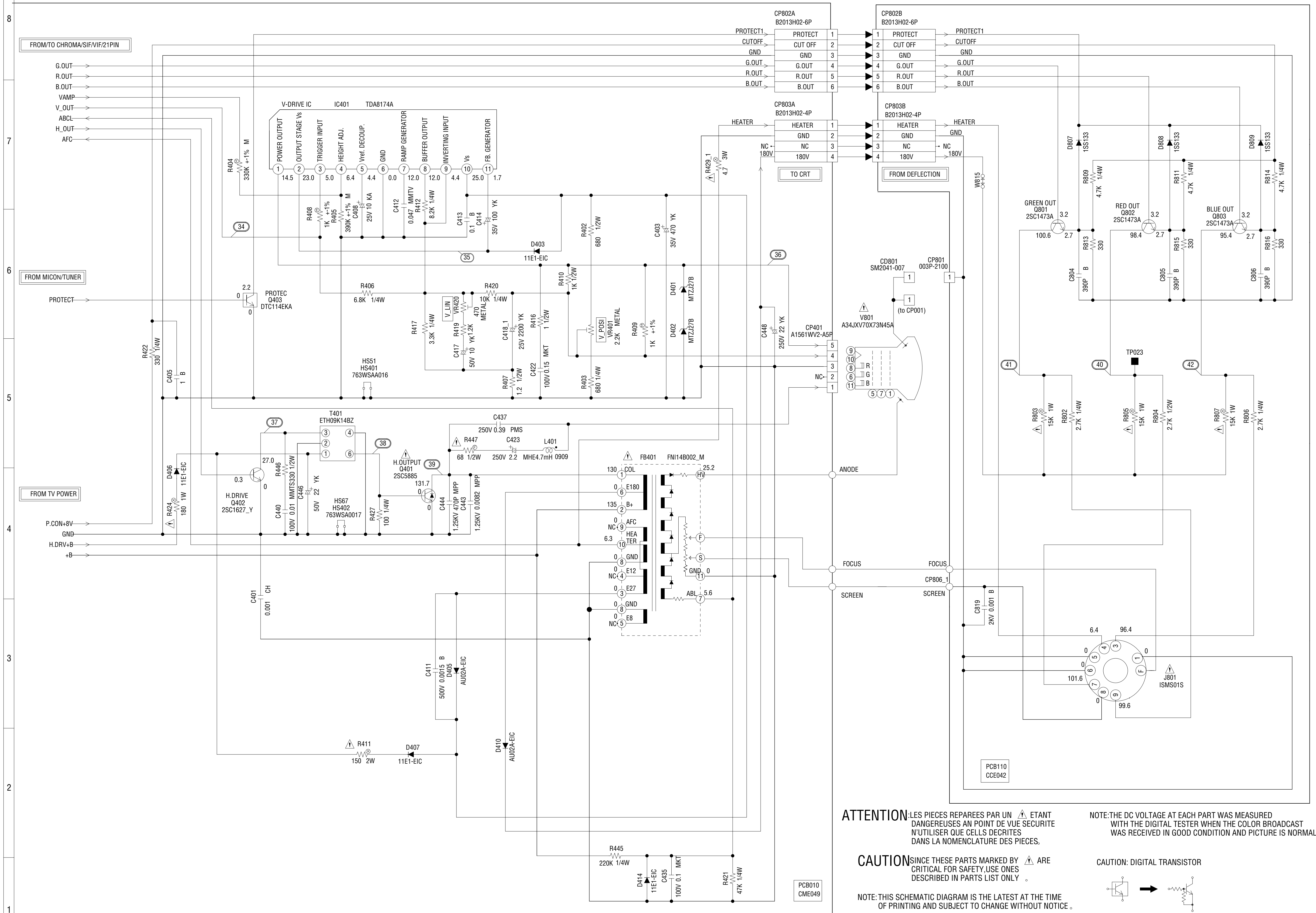
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

◁◁ TUNER VIDEO SIGNAL
⇦ AUDIO SIGNAL

DEFLECTION/CRT SCHEMATIC DIAGRAM (MAIN PCB)



ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

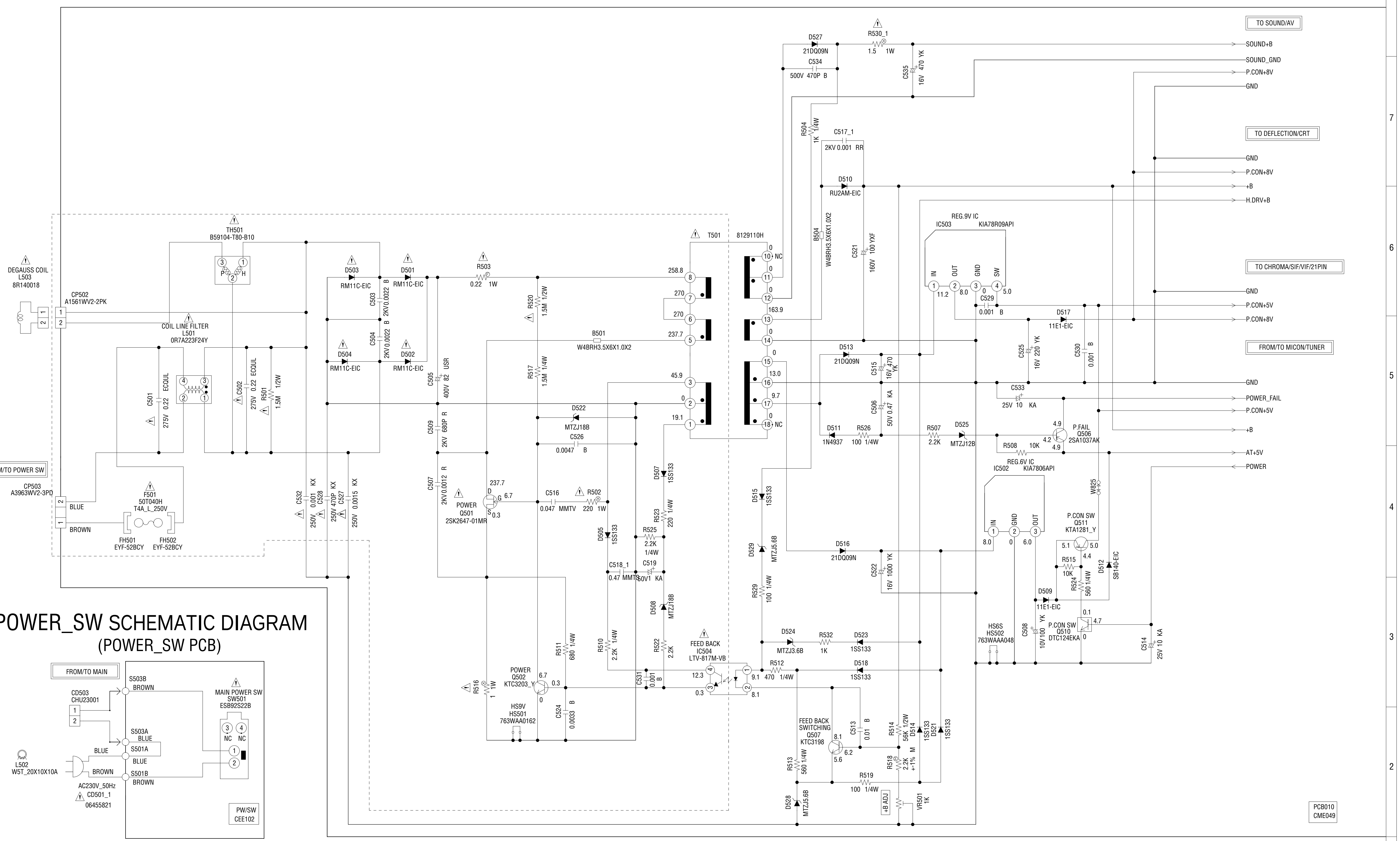
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

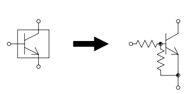
CAUTION: DIGITAL TRANSISTOR

TV POWER SCHEMATIC DIAGRAM
(MAIN PCB)



POWER_SW SCHEMATIC DIAGRAM
(POWER_SW PCB)

CAUTION: DIGITAL TRANSISTOR



ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

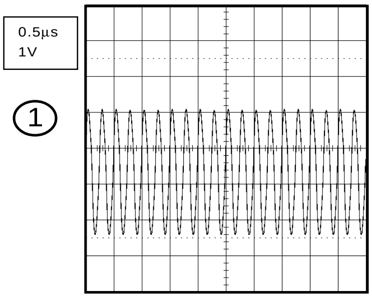
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

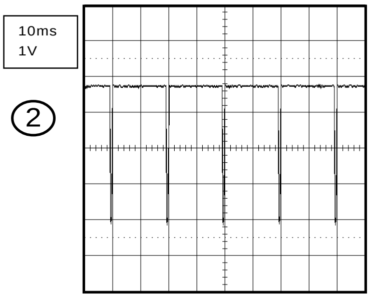
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

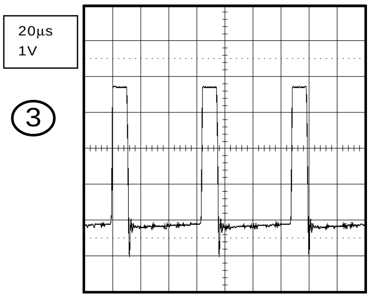
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

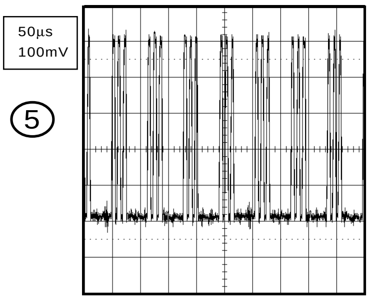
WAVEFORMS

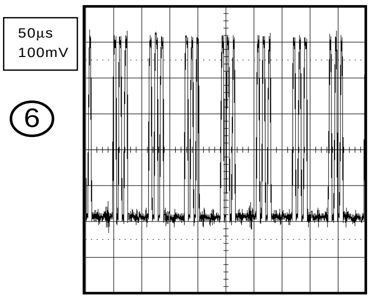
MICON/TUNER

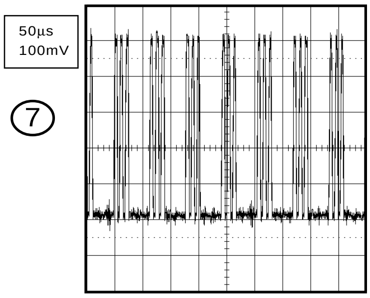


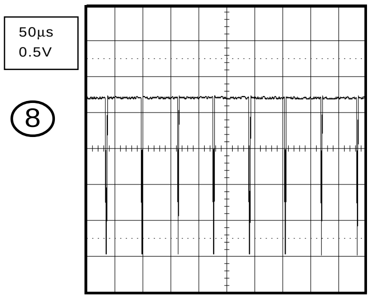


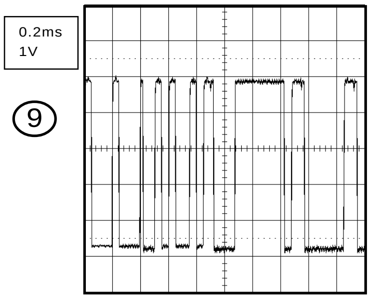


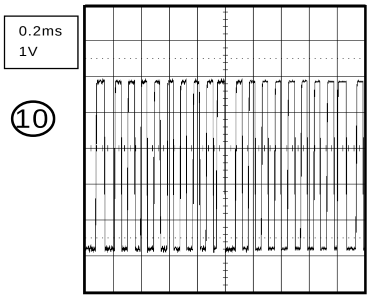


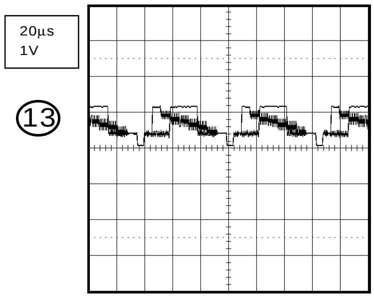


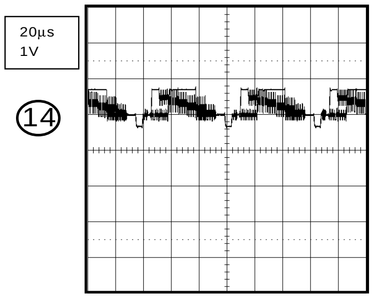


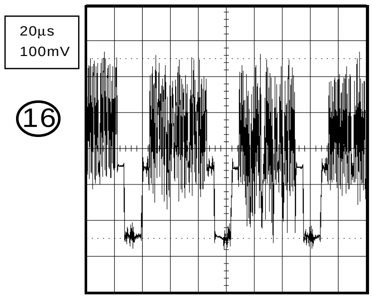


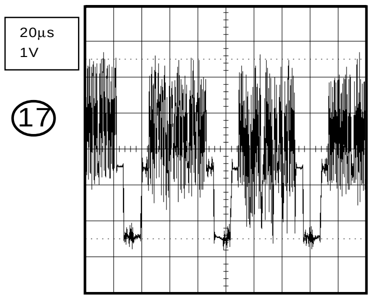




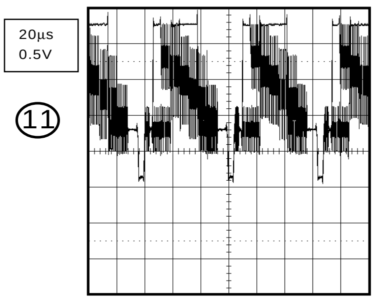


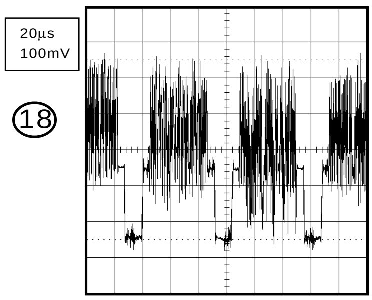






CHROMA/SIF/VIF/21PIN





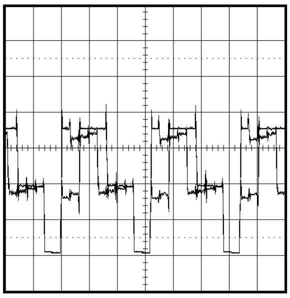
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

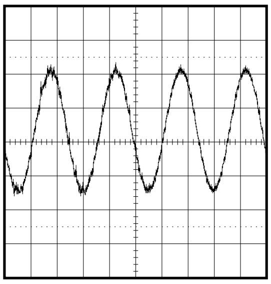
WAVEFORMS

SOUND/AV

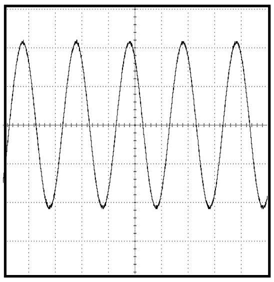
20µs
1V

(19)





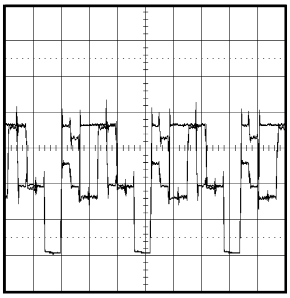
(25) 200mV 1ms/div

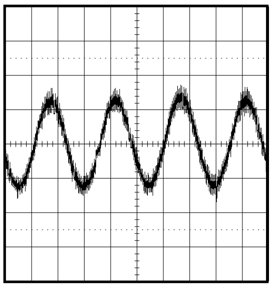


(30) 200mV 500µs/div

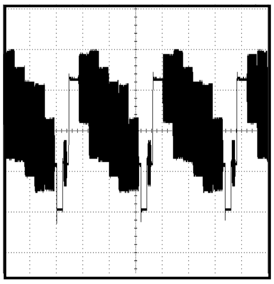
20µs
1V

(20)





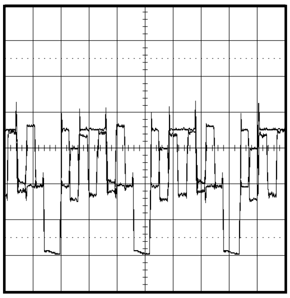
(26) 0.5V 1ms/div

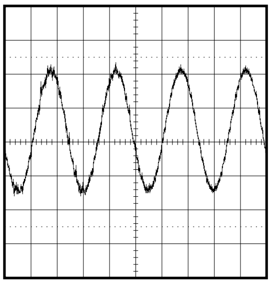


(31) 500mV 20µs/div

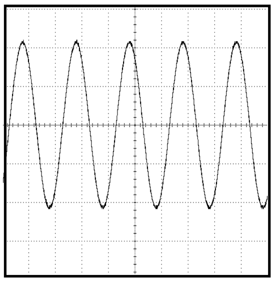
20µs
1V

(21)





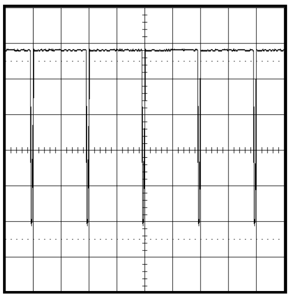
(27) 200mV 1ms/div

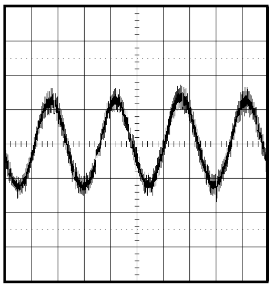


(32) 200mV 500µs/div

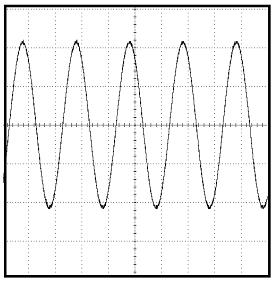
10ms
1V

(23)





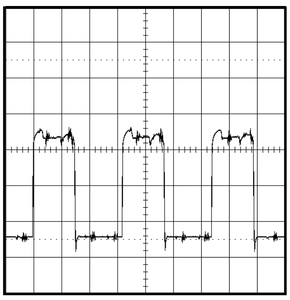
(28) 0.5V 1ms/div

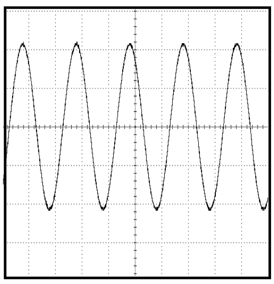


(33) 200mV 500µs/div

20µs
200mV

(24)



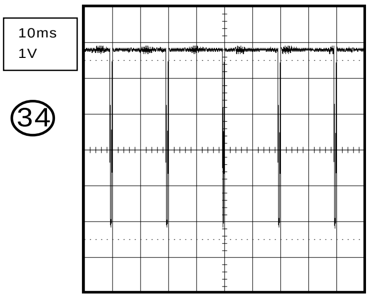


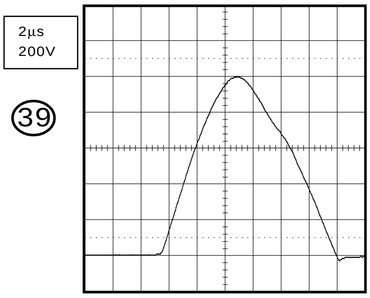
(29) 200mV 500µs/div

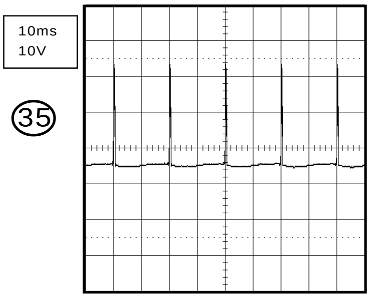
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

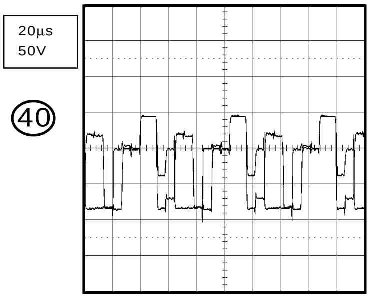
WAVEFORMS

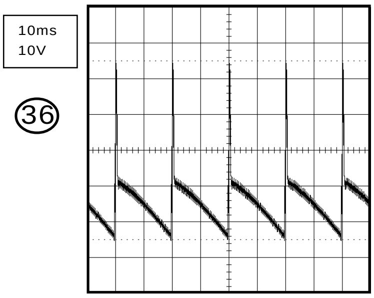
DEFLECTION/CRT

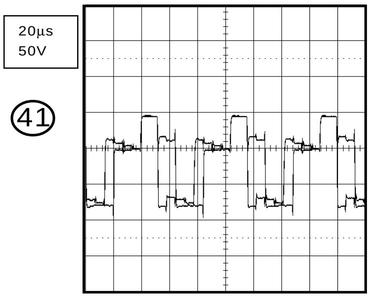


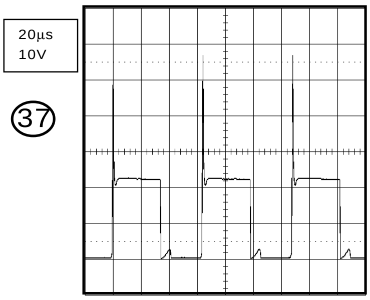


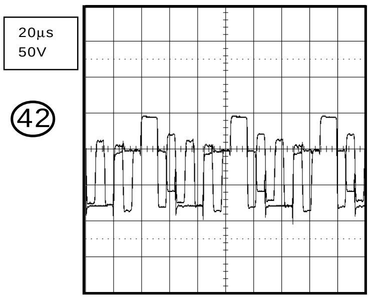


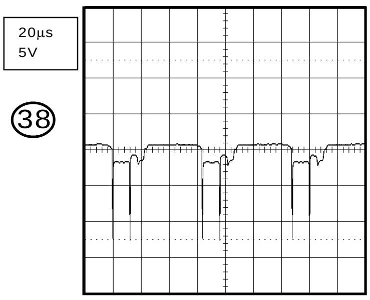






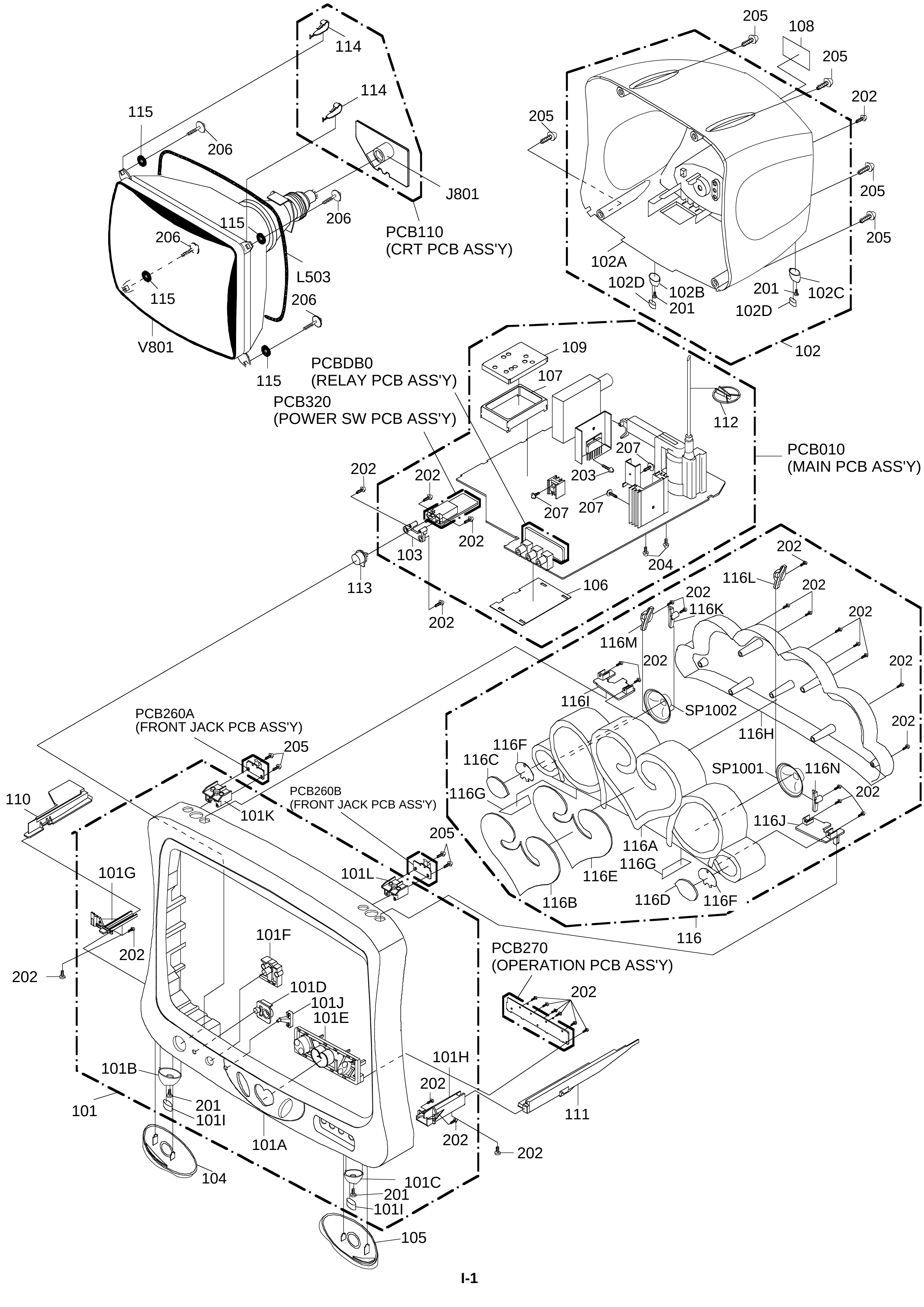






NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

MECHANICAL EXPLODED VIEW



MECHANICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		
101	7A701A567A	FRONT CABI ASS'Y		
101A	701WPJD162	CABINET,FRONT		
101B	704WPAA029	LEG-FRONT(L)		
101C	704WPAA030	LEG-FRONT(R)		
101D	713WPAA174	GUIDE REMOCON		
101E	738WPJA023	BUTTON FRAME-PRINCESS		
101F	738WPBA132	BUTTON,FRAME		
101G	761WPAA096	HOLDER,PCB-2(L)		
101H	761WPAA097	HOLDER PCB-2(R)		
101I	800WFA0060	CUSHION LEG		
101J	713WPAA175	GLASS LED		
101K	761WPAA133	HOLDER,SPEAKER-PCB(L)		
101L	761WPAA134	HOLDER,SPEAKER-PCB(R)		
102	7A702A172A	BACK CABI ASS'Y		
102A	702WPBA206	CABINET BACK		
102B	704WPAA027	LEG-BACK(L)		
102C	704WPAA028	LEG-BACK(R)		
102D	800WFA0060	CUSHION LEG		
103	735WPAA782	HOLDER,POWER SW		
104	704WPAA031	LEG,PRINCESS(L)		
105	704WPAA032	LEG,PRINCESS(R)		
106	752WSAA006	PLATE,SHIELD		
107	752WSAA008	SHIELD,CASE		
108	722616A031	SHEET RATING		
109	752WSAA013	SHIELD,LID		
110	761WPAA107	HOLDER,PCB (L)		
111	761WPAA108	HOLDER,PCB (R)		
112	899HV3T000	HOLDER ANODE WIRE		
113	735WPBB239	BUTTON,POWER		
114	8994101000	HOLDER CRT WIRE		
115	800WR0A011	SHEET CRT SUPPORT (D)		
116	7A701A568A	SPEAKER CABI ASS'Y		
116A	701WPBA062	CABINET FRONT-SP		
116B	711WPAA116	PLATE,HEART-CENTER		
116C	711WPAA117	PLATE,HEART(L)		
116D	711WPAA118	PLATE,HEART(R)		
116E	729WDAA001	DUBLE,FACE-TAPE 1		
116F	729WDAA002	DUBLE,FACE-TAPE 2		
116G	800WQ0A086	FELT SHEET		T=0.5
116H	702WPBA205	CABINET BACK SP.1/2		
116I	761WPAA109	HOLDER,TIARA(L)		
116J	761WPAA110	HOLDER,TIARA(R)		
116K	761WPAA111	HOLDER,SPEAKER1(L)		
116L	761WPAA112	HOLDER,SPEAKER1(R)		
116M	761WPAA113	HOLDER,SPEAKER2(L)		
116N	761WPAA114	HOLDER,SPEAKER2(R)		
201	8117330A0U	SCREW TAPPING(BO)	FLAT	3x10
202	8110630A0U	SCREW TAP TITE(P)	BRAZIER	3x10
203	810763080U	SCREW TAP TITE(S)	BRAZIER	3x8
204	810963080Q	SCREW TAP TITE(B)	BRAZIER	3x8
205	8117540A6U	SCREW TAP TITE(B0)	TRUSS	4x16
206	8121J50B5U	SCREW TAP TITE(P)	GW20	5x28
207	8109I3080U	SCREW TAP TITE(B)	WH7	3x8
---	793WCDC966	GIFT BOX		
---	791WHAA122	FILM BAG		
---	791WHAA137	LIGHTRON SHEET		
---	792UHAA057	PACKAGE,BOTTOM		
---	792UHAA064	PACKAGE,TOP		
---	A3Q909W975	INSTRUCTION BOOK KIT		
---	J3Q90502A	GUARANTEE CARD		
---	J3Q909B1A	INSTRUCTION BOOK		
---	JA4XD200	POLYBAG,INSTRUCTION(RED CAUTION)		

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
RESISTORS			
⚠ R408	R4X5T6102F	R,METAL	1K OHM 1/6W
⚠ R411	R3X28A151J	R,METAL OXIDE	150 OHM 2W
⚠ R424	R3X181181J	R,METAL OXIDE	180 OHM 1W
⚠ R429	R3X28B4R7J	R,METAL OXIDE	4.7 OHM 3W
⚠ R447	R638U2680J	R,FUSE	68 OHM 1/2W
⚠ R501	R002T2155J	RC	1.5M OHM 1/2W
⚠ R502	R3X181221J	R,METAL OXIDE	220 OHM 1W
⚠ R503	R63881R22J	R,FUSE	0.22 OHM 1W
⚠ R516	R3X181010J	R,METAL OXIDE	1 OHM 1W
⚠ R520	R002T2155J	RC	1.5M OHM 1/2W
⚠ R530	R3X1811R5J	R,METAL OXIDE	1.5 OHM 1W
⚠ R803	R3X181153J	R,METAL OXIDE	15K OHM 1W
⚠ R805	R3X181153J	R,METAL OXIDE	15K OHM 1W
⚠ R807	R3X181153J	R,METAL OXIDE	15K OHM 1W
CAPACITORS			
C418	E02L03222M	CE	2200 UF 25V
C437	P4J7F3394J	CMPP	0.39 UF 250V PMS
C443	P4N8FJ822H	CMPP	0.0082UF 1.25KV
⚠ C444	P4N8FJ471J	CMPP	470 PF 1.25KV
C448	E0ELFD220M	CE	22 UF 250V
⚠ C501	P2122B224M	CMP	0.22 UF 275V ECQUL
⚠ C502	P2122B224M	CMP	0.22 UF 275V ECQUL
C503	C0JBB07H3K	CC	0.0022UF 2KV B
C504	C0JBB07H3K	CC	0.0022UF 2KV B
C505	E52DHH820M	CE	82 UF 400V
C507	C03L0R7B3K	CC	0.0012UF 2KV R
C509	C0PLRR7U2K	CC	680 PF 2KV R
⚠ C517	C0PLRR713K	CC	0.001 UF 2KV R
C521	E62NFB101M	CE	100 UF 160V
⚠ C527	CD39E0ME3M	CC	0.0015UF 250V
⚠ C528	CD39B0MQ2K	CC	470 PF 250V
⚠ C532	CD39E0M13M	CC	0.001 UF 250V
C819	C0JBB0713K	CC	0.001 UF 2KV B
DIODES			
D001	D97U03301B	DIODE,ZENER	MTZJ33B T-77
D101	0021721150	LED	SLR-342VCT32
D102	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
D103	D97U05R11B	DIODE,ZENER	MTZJ5.1B T-77
D104	D1VT001330	DIODE,SILICON	1SS133T-77
D105	D1VT001330	DIODE,SILICON	1SS133T-77
D106	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
D107	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
D109	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
D301	DD1R0MA770	DIODE,SILICON	MA77
D401	D97U02701B	DIODE,ZENER	MTZJ27B T-77
D402	D97U02701B	DIODE,ZENER	MTZJ27B T-77
D403	D2WT011E10	DIODE SILICON	11E1-EIC
D405	D2WTAU02A0	DIODE SILICON	AU02A-EIC
D406	D2WT011E10	DIODE SILICON	11E1-EIC
D407	D2WT011E10	DIODE SILICON	11E1-EIC
D410	D2WTAU02A0	DIODE SILICON	AU02A-EIC
D414	D2WT011E10	DIODE SILICON	11E1-EIC
⚠ D501	D2WTRM11C0	DIODE SILICON	RM11C-EIC
⚠ D502	D2WTRM11C0	DIODE SILICON	RM11C-EIC
⚠ D503	D2WTRM11C0	DIODE SILICON	RM11C-EIC
⚠ D504	D2WTRM11C0	DIODE SILICON	RM11C-EIC
D505	D1VT001330	DIODE,SILICON	1SS133T-77
D507	D1VT001330	DIODE,SILICON	1SS133T-77
D508	D97U01801B	DIODE,ZENER	MTZJ18B T-77
D509	D2WT011E10	DIODE SILICON	11E1-EIC
D510	D2WXRU2AM0	DIODE SILICON	RU2AM-EIC
D511	D2WXN49370	DIODE SILICON	1N4937
D512	D2WXSB1400	DIODE SCHOTTKY	SB140-EIC
D513	D28T21DQN9	DIODE SCHOTTKY	21DQ09N-TA2B1
D514	D1VT001330	DIODE,SILICON	1SS133T-77
D515	D1VT001330	DIODE,SILICON	1SS133T-77
D516	D28T21DQN9	DIODE SCHOTTKY	21DQ09N-TA2B1
D517	D2WT011E10	DIODE SILICON	11E1-EIC
D518	D1VT001330	DIODE,SILICON	1SS133T-77
D521	D1VT001330	DIODE,SILICON	1SS133T-77
D522	D97U01801B	DIODE,ZENER	MTZJ18B T-77
D523	D1VT001330	DIODE,SILICON	1SS133T-77
D524	D97U03R61B	DIODE,ZENER	MTZJ3.6B T-77
D525	D97U01201B	DIODE,ZENER	MTZJ12B T-77
D527	D28T21DQN9	DIODE SCHOTTKY	21DQ09N-TA2B1
D528	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
D529	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77

REF. NO.	PART NO.	DESCRIPTION	
DIODES			
D602	D1VT001330	DIODE,SILICON	1SS133T-77
D603	D1VT001330	DIODE,SILICON	1SS133T-77
D604	D2WT011E10	DIODE SILICON	11E1-EIC
D606	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D607	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D608	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D609	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
D610	D97U09R11B	DIODE,ZENER	MTZJ9.1B T-77
D611	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
D703	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
D705	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
D706	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
D709	D97U05R11B	DIODE,ZENER	MTZJ5.1B T-77
D807	D1VT001330	DIODE,SILICON	1SS133T-77
D808	D1VT001330	DIODE,SILICON	1SS133T-77
D809	D1VT001330	DIODE,SILICON	1SS133T-77
ICS			
IC101	I56D07110A	IC	OEC7110A
IC102	I9UF032310	IC	PST3231NR
IC199	A3Q907W015	INIT DATA	AT24C08AN-10SU-2.7
IC201	I0WDE2248H	IC	STV2248H
IC401	I0WTD81740	IC	TDA8174A
IC502	I1KA97806A	IC	KIA7806API
IC503	I1KA98R09A	IC	KIA78R09API
⚠ IC504	0002E00610	PHOTO COUPLER	LTV-817M-VB
IC701	I0QF02534V	IC	NJM2534V(TE2)
IC702	I0QF02534V	IC	NJM2534V(TE2)
⚠ IC1001	I01DP75130	IC	AN7513
⚠ IC1002	I01DP75130	IC	AN7513
TRANSISTORS			
Q103	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q201	T8AA03881S	TRANSISTOR SILICON	KTC3881S-RTK
Q203	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
Q204	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q301	T8AA03881S	TRANSISTOR SILICON	KTC3881S-RTK
Q302	T8AA03881S	TRANSISTOR SILICON	KTC3881S-RTK
Q303	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q304	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
⚠ Q401	TC1G058850	TRANSISTOR SILICON	2SC5885
Q402	TC5T01627Y	TRANSISTOR SILICON	2SC1627_Y(TPE2)
Q403	TNYJB05001	COMPOUND TRANSISTOR	DTC114EKAT146
⚠ Q501	T410K26470	FET	2SK2647-01MR
Q502	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
Q506	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q507	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
Q510	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q511	TAAT01281Y	TRANSISTOR SILICON	KTA1281_Y
Q605	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
⚠ Q801	TCKT1473A0	TRANSISTOR SILICON	2SC1473A-TA-(RQ)
⚠ Q802	TCKT1473A0	TRANSISTOR SILICON	2SC1473A-TA-(RQ)
⚠ Q803	TCKT1473A0	TRANSISTOR SILICON	2SC1473A-TA-(RQ)
Q1001	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q1002	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q1003	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
COILS &TRANSFORMERS			
L001	02167F100J	COIL	10 UH
L101	02167F3R3J	COIL	3.3 UH
L103	021LA6100K	COIL	10 UH
L202	02167F3R3J	COIL	3.3 UH
L203	021LA61R0M	COIL	1 UH
L204	021LA6120K	COIL	12 UH
L206	021LA6R22M	COIL	0.22 UH
L207	033700005R	COIL,VIDEO IFT	3700005
L302	021LA6R22M	COIL	0.22 UH
L401	021679472K	COIL	4.7 MH
⚠ L501	029T000094	COIL,LINE FILTER	0R7A223F24Y
L502	02AHB0A0A4	CORE FERRITE	W5T_20X10X10A
⚠ L503	028R140018	COIL,DEGAUSS	8R140018
L601	02167F100J	COIL	10 UH
L701	02167F470J	COIL	47 UH
L702	021LA6100K	COIL	10 UH
L703	021LA6100K	COIL	10 UH
L704	021LA6100J	COIL	10 UH
L706	021LA6100K	COIL	10 UH
L707	021LA6100K	COIL	10 UH
L708	021LA6100K	COIL	10 UH
T401	045009003J	TRANS,HORIZONTAL DRIVE	ETH09K14BZ

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
COILS &TRANSFORMERS			
⚠ T501	048129110H	TRANSFORMER,SWITCHING	8129110H
JACKS			
J701	063D100050	SOCKET,21PIN	MRC-021V-07_A
J702	060J421037	RCA JACK	MTJ-032-05A-32-FE
J703	060J421030	RCA JACK	MTJ-032-05A-31-FE
J704	060J421036	RCA JACK	MTJ-032-05A-30-FE
⚠ J801	066F120018	SOCKET,CATHODE RAY TUBE	ISMS01S
J1001	060J131016	HEADPHONE JACK	MSJ-2000_AG
J1150	060J421037	RCA JACK	MTJ-032-05A-32-FE
J1151	060J421030	RCA JACK	MTJ-032-05A-31-FE
SWITCHES			
⚠ SW501	0530105019	SWITCH	ESB92S22B
SW2002	0504101T34	SWITCH,TACT	EVQ21505R
SW2003	0504101T34	SWITCH,TACT	EVQ21505R
SW2004	0504101T34	SWITCH,TACT	EVQ21505R
SW2005	0504101T34	SWITCH,TACT	EVQ21505R
SW2006	0504101T34	SWITCH,TACT	EVQ21505R
SW2007	0504101T34	SWITCH,TACT	EVQ21505R
VARIABLE RESISTORS			
VR401	V1K63H3BTE	VOLUME,SEMI FIXED	NVG6TLTAB222
VR420	V1K63Q2BTE	VOLUME,SEMI FIXED	NVG6TLTAB471
VR501	V116313BTC	VOLUME,SEMI FIXED	EVNCYAA03B13
P.C.BOARD ASSEMBLIES			
PCB010	A3Q909W010K	PCB ASS'Y	CME049A
PCB110	A3Q909W110K	PCB ASS'Y	CCE042A
PCB270	A3Q909W270K	PCB ASS'Y	CEE092A
PCB320	A3Q909W320K	PCB ASS'Y	CEE102A
PCBDB0	A3Q909WDB0K	PCB ASS'Y	CEE093A
PCB260A	A3Q909W260K	PCB ASS'Y	CEE090A
PCB260B	A3Q909W260K	PCB ASS'Y	CEE091A
MISCELLANEOUS			
B501	024HT03563	CORE,BEADS	W4BRH3.5X6X1.0X2
B504	024HT03563	CORE,BEADS	W4BRH3.5X6X1.0X2
B1001	024HT03564	CORE,BEADS	W4BRH3.5X6X1.0
B1002	024HT03564	CORE,BEADS	W4BRH3.5X6X1.0
B1003	024HT03564	CORE,BEADS	W4BRH3.5X6X1.0
B1004	024HT03564	CORE,BEADS	W4BRH3.5X6X1.0
B1005	024HT03564	CORE,BEADS	W4BRH3.5X6X1.0
B1006	024HT03564	CORE,BEADS	W4BRH3.5X6X1.0
B1007	024HT03564	CORE,BEADS	W4BRH3.5X6X1.0
B1008	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
BT001	141R004016	BATTERY,MANGAN	GR03X-SP2
BT002	141R004016	BATTERY,MANGAN	GR03X-SP2
⚠ CD501	1206455821	CORD AC BUSH	6455821
CD503	06CHU23001	CORD CONNECTOR	CHU23001
CD801	1278140031	BRAIDED WIRE	SM2041-007
CD802	WDL6042038	FLAT CABLE	AWG26 6C BLACK 420MM
CD803	WBL6028038	FLAT CABLE	AWG26 4C BLACK 280MM
CF201	1012T5R515	FILTER,CERAMIC TRAP	TPWRF5M50B02-A0
CF202	102E238R9E	FILTER,SAW	J1981M
CF204	1012T03101	FILTER CERAMIC TRAP	MKT31.9MA110P-TF
CF301	102E238R94	FILTER,SAW	K9650M
CF304	1012T04001	FILTER,CERAMIC TRAP	MKT40.4MA110P-TF
CP001	069W01001A	CONNECTOR PCB SIDE	003P-2100
CP101	069S260629	CONNECTOR PCB SIDE	A2001WV2-6P
CP102	069S270639	CONNECTOR PCB SIDE	A2001WR2-7P
CP401	069S450089	CONNECTOR PCB SIDE	A1561WV2-A5P
CP502	069S420099	CONNECTOR PCB SIDE	A1561WV2-2PK
CP503	069S320419	CONNECTOR PCB SIDE	A3963WV2-3PD
CP701	069J130340	CONNECTOR PCB SIDE	IMSA-6035B-03Z002-PT
CP801	069W01001A	CONNECTOR PCB SIDE	003P-2100
CD1001	06CH145901	CORD CONNECTOR	CH145901
CD2001	06CH262003	CORD CONNECTOR	CH262003
CP1001	069S140419	CONNECTOR PCB SIDE	A2502WV2-4P
CP802A	067U006049	WIRE HOLDER	B2013H02-6P
CP802B	067U006049	WIRE HOLDER	B2013H02-6P
CP803A	067U004029	WIRE HOLDER	B2013H02-4P
CP803B	067U004029	WIRE HOLDER	B2013H02-4P
EL002	124120301A	EYE LET	XRY20X30BD
⚠ F501	080NT04004	FUSE	50T040H
⚠ FB401	043214050F	TRANSFORMER,FLYBACK	FNI14B002_M
FH501	06710T0009	HOLDER,FUSE	EYF-52BCY
FH502	06710T0009	HOLDER,FUSE	EYF-52BCY
OS2001	077Q037002	REMOTE RECEIVER	PIC-37143TH5
⚠ SP1001	070W132024	SPEAKER	NP-300W-L(RCA 115)
⚠ SP1002	070W132024	SPEAKER	NP-300W-L(RCA 115)
⚠ TH501	D8E080B100	DEGAUSS ELEMENT	B59104-T80-B10

REF. NO.	PART NO.	DESCRIPTION	
MISCELLANEOUS			
TM101	076N0JP030	TRANSMITTER	RC-JP030
⚠ TU001	0145517012	TUNER,VHF-UHF	TUWRF4EG-778F2A_P3
⚠ V801	09FY140402	CRT W/DY(B+D)	A34JXV70X73N45A
X101	100CT8R005	CRYSTAL	HC-49/U-S
X601	100CT4R408	CRYSTAL	HC-49/U

RESISTOR

RC.................. CARBON RESISTOR

CAPACITORS

CC.................. CERAMIC CAPACITOR
CE.................. ALUMI ELECTROLYTIC CAPACITOR
CP.................. POLYESTER CAPACITOR
CPP................. POLYPROPYLENE CAPACITOR
CPL................. PLASTIC CAPACITOR
CMP................. METAL POLYESTER CAPACITOR
CMPL............... METAL PLASTIC CAPACITOR
CMPP............... METAL POLYPROPYLENE CAPACITOR

SPEC.NO.	M3Q9-09W
O/R NO.	U593562